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DATE: December 19, 1979

NATIONAL AVIATION FACILITIES
EXPERIMENTAL CENTER
ATLANTIC CITY, NEW JERSEY 08405

IN REPLY
REFER TO: ANA-220



SUBJECT: Los Angeles Simulation Model Results for Stage 1 Experiments

FROM: Program Manager, ANA-220

TO: Frank Jones

LEVEL III

Enclosed is data package 7 for review by the Task Force members. The Stage 1 experiments have been re-worked since the last meeting in November and reflect the latest comments of the group.

Attachment A is a list of the Stage 1 and Stage 2 experiments.

The Stage 1 experiments (attachment B) are arranged in sets to illustrate various comparisons requested by the Task Force members. VRF and IFR weather conditions have been separated along with each configuration (westerly, easterly, and night time operations). Each experiment contains a description of the objective, the runway configuration, the related experiments and a summary of the results. A link node diagram is included to illustrate the airfield changes noted in the experiment.

The results of the experiments are presented in the following sets:

Set 1 - Experiments 1, 7, 7A, 7B, 11, and 13

Set 2 - Experiments 2, 3, 8, 8A, 8B, and 12

Set 3 - Experiments 6, 9, and 16

Set 4 - Experiments 4, 10, and 15

Set 5 - Experiments 5 and 10A

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Set 1 of the Stage 1 experiments deals with the VFR-1 weather conditions during westerly flow of traffic. The demand (aircraft schedule) follows the pattern of distributions over class of operation, arrival fixes, runways and gates observed during normal conditions for experiments 1, 7, 7A, 7B and 13. The distribution of traffic for experiment 11 was changed for departures dependent upon the projected increase due to tunnel improvements. Experiment 11 was repeated under the same demand but with the departures automatically rerouted to 24R when a departure queue of 4 built-up on runway 25R.

Set 2 of the Stage 1 experiments deals with the IFR-1 and IFR-2 weather conditions during westerly flow of traffic. Initially, the demand (aircraft schedule) followed the VFR conditions for runway use. This demand had to be modified because of the excessive arrival delays encountered on 25L. All arriving aircraft heading for gate areas 1, 2, 3 and 4 were assigned runway 24R shifting the demand to the north complex. Gate areas 1, 2, 3 and 4 were selected because of their location on the airfield. Gate 4 was the closest one (in the south complex) to runway 24R. This modified demand method was used for experiments 2, 3, 8, 8A and 8B. The distribution of traffic for experiment 12 was changed for departures dependent upon the projected increase in demand for use of 25R after tunnel construction. Experiment 12 was repeated under the same demand but with the departures automatically rerouted to 24L when a departure queue of 4 built-up on runway 25R.

Set 3 of the Stage 1 experiments deals with the VFR-1 weather conditions during easterly flow of traffic. Initially, the demand followed the mirror image of runway use for the westerly flow. The arrival demand was modified because of delays encountered on 7R. This modified demand was used for experiments 6, 9 and 16.

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Set 4 of the Stage 1 experiments deals with the VFR weather conditions during night time operation. The original aircraft schedule was reworked to permit arrivals on 6R only and departures on 24L (heavys and north bound traffic only) and on 25R (all others). No arrivals have been assigned to 7L because the model, at the present time, can not direct arrivals when the runway is free of a departure queue.

Set 5 of the Stage 1 experiments deals with the IFR weather condition during night time operation.

JOHN R. VANDERVEER

Enclosures

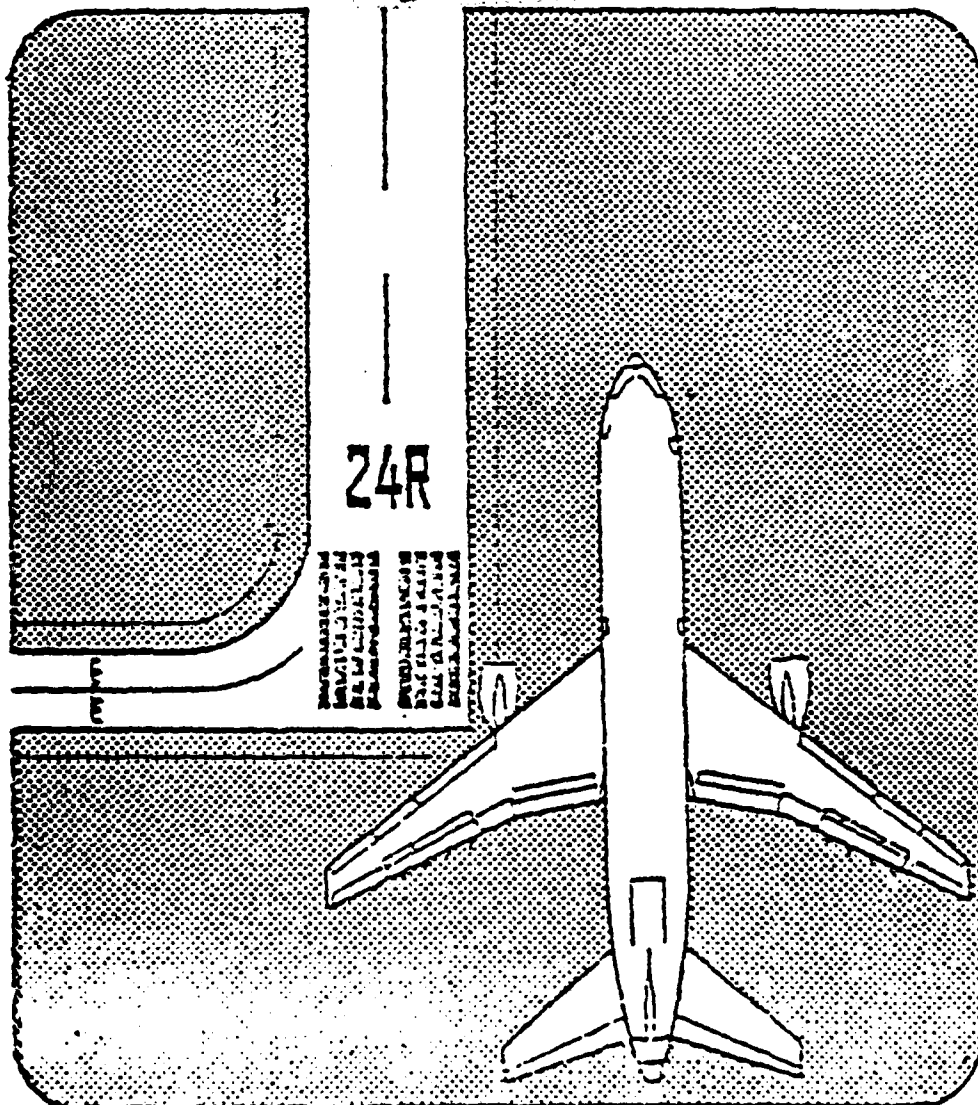
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**LOS ANGELES
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LAX - STAGE 1EXPERIMENT NO. 1Objective:

To obtain baseline delay estimates for the following runway configuration in VFR-1 for 1973 demand.

ARRIVAL RUNWAYS

24R, 24L, 25R, 25L

DEPARTURE RUNWAYS

24R, 24L, 25R, 25L

Related Comparison Experiments:

Calibration was performed using this configuration ("A")

Experiment 7 uses configuration "A" with 1982 demand.

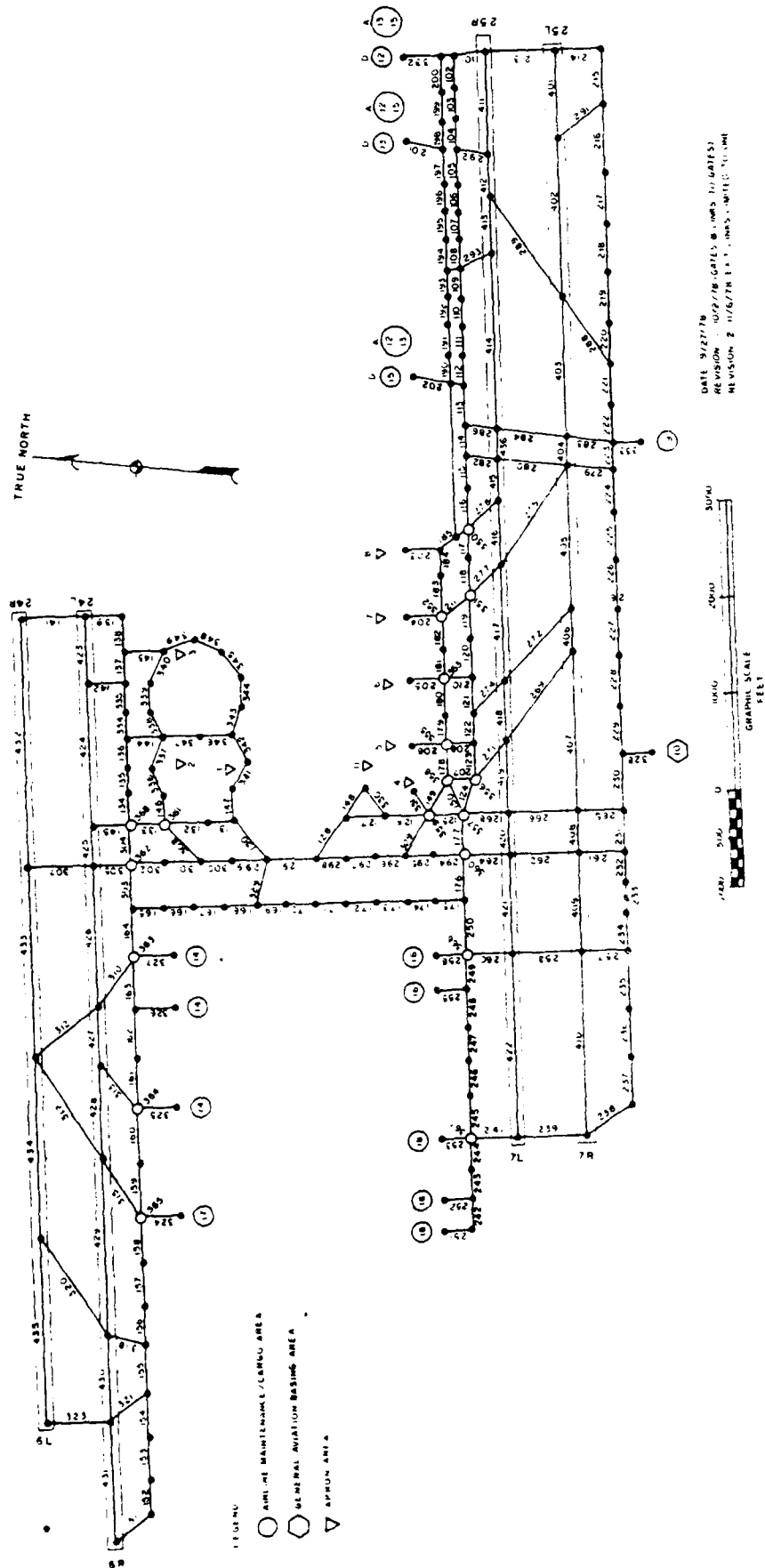


Figure 1 LAX LINK NODE DIAGRAM (PRESENT)

TABLE 3

SUMMARY OF RESULTS

EXPERIMENT NO. **1**

TIME	AVERAGE FLOW RATES															AVERAGE TRAVEL TIME					
	ARRIVALS					DEPARTURES					AVERAGE TRAVEL TIME					FIX TO THRESH.	THRESH. TO GATE	GATE TO ROLL			
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.							
7-8	10.0	2.0	8.0	10.0	30.0	21	+1.0	4.0	16.0	13.0	8.0	41.0	48	-7.0	9.5	4.0	7.4				
8-9	11.0	3.0	14.0	10.0	38.0	31	-1.0	2.2	29.2	18.5	8.0	57.9	64	-6.1	10.4	4.3	11.6				
9-10	8.0	2.0	12.3	16.1	36.4	40	-1.6	4.5	26.3	22.4	3.4	56.6	52	14.6	9.9	4.3	18.4				
10-11	11.0	1.0	14.7	22.9	47.6	50	-0.4	3.5	11.3	19.8	8.3	49.0	48	+1.0	10.3	4.4	13.1				
11-12	14.0	5.0	9.4	22.5	60.7	57	+1.7	7.8	13.1	12.1	12.1	48.8	52	-3.2	14.3	4.5	9.8				
12-13	9.0	2.0	11.6	23.6	46.5	45	+1.2	4.0	12.8	12.9	15.7	55.4	65	-7.6	14.5	4.6	14.1				
13-14	10.0	1.0	14.4	16.0	41.4	43	-0.6	3.0	18.7	12.7	16.2	59.2	51	+8.2	10.7	4.4	21.8				
14-15	7.0	3.0	12.5	21.6	44.1	47	-2.9	9.0	19.2	19.2	5.9	43.4	39	+4.4	11.9	4.4	10.8				
TIME	ARRIVAL DELAYS															DEPARTURE DELAYS				GRAND TOTAL	
	AVERAGE															AVERAGE				TOTAL	
7-8	RWY 24R 0.3	RWY 24L 0.1	RWY 25R 0.1	RWY 25L 0.1	ALL RWY 0.2	RWY CROSS 0.4	TAXI IN 0.1	RWY 24R 0.7	RWY 24L 1.5	RWY 25R 0.9	RWY 25L 1.5	ALL RWY 1.3	RWY CROSS 0.0	TAXI OUT 0.3	RWY CONG. 0.0	ARR. DELAY 0.7	DEP. DELAY 1.6				
8-9	0.7	0.1	0.3	0.4	0.4	0.1	0.0	1.8	5.5	6.3	4.0	5.4	0.0	0.1	0.0	0.5	5.5				
9-10	0.2	0.0	0.4	1.0	0.6	0.0	0.1	1.6	12.2	12.3	2.0	10.6	0.0	0.2	0.2	0.7	11.0				
10-11	0.4	0.0	0.8	1.9	1.2	0.1	0.1	0.9	2.9	10.0	3.7	5.9	0.0	0.3	0.1	1.4	6.3				
11-12	0.2	0.7	0.9	8.7	4.9	0.1	0.1	1.2	1.5	2.6	9.6	3.8	0.0	0.2	0.0	2.1	4.0				
12-13	0.1	0.0	0.9	9.8	5.3	0.1	0.1	2.7	3.2	13.3	10.3	7.5	0.0	0.5	0.1	5.5	8.1				
13-14	0.6	1.3	0.7	1.7	1.1	0.1	0.1	1.9	3.6	21.8	15.8	12.7	0.0	1.0	0.3	1.3	14.0				
14-15	0.2	0.0	1.3	4.4	2.5	0.1	0.0	0.4	0.4	8.5	1.9	4.2	0.0	0.3	0.5	2.6	5.0				

LAX - STAGE 1EXPERIMENT NO. 7 (7A)(7B)Objective:

To obtain baseline delay estimates for the following runway configurations in VFR 1 for 1982 demand. (+5%)(+15%)

To obtain delay estimates for 1982 with no improvements to the airport.

ARRIVAL RUNWAYS

24R, 24L, 25R, 25L

DEPARTURE RUNWAYS

24R, 24L, 25R, 25L

Related Comparison Experiments:

Experiment 11 is similar with an improved ATC system scenario (1982) and the 1982 near-term improvements.

Prior Experiment 1 is similar for the 1978 demand.

TABLE 5

SUMMARY OF RESULTS

EXPERIMENT NO. 7A

TIME	AVERAGE FLOW RATES													AVERAGE TRAVEL TIME				
	ARRIVALS					DEPARTURES								FIX TO THRESH.	THRESH. TO GATE	GATE TO ROLL		
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND				DIFF.	
7-8	10	30	70	130	280	26	+20	50	190	150	50	47.0	50	-6.0	10.1	40	7.4	
8-9	20	20	110	240	45.4	47	-1.6	40	22.6	18.8	8.1	54.5	67	-2.5	11.0	44	12.7	
9-10	20	20	19.5	12.6	42.1	43	-0.9	49	27.5	170	7.8	59.2	57	+2.2	13.4	44	20.3	
10-11	130	20	102	27.8	53.0	56	-2.0	4.1	18.3	199	10.8	53.1	50	+3.1	13.0	4.4	20.2	
11-12	110	30	222	27.0	63.2	65	-1.8	66	20.0	15.3	7.6	49.5	55	-5.5	14.4	4.8	13.5	
12-13	100	10	129	22.9	46.8	46	+0.8	5.3	27.4	14.6	12.9	60.2	68	-7.8	19.2	4.4	19.3	
13-14	80	20	132	220	45.2	42	+3.2	4.1	270	170	10.3	58.4	57	+1.4	13.6	4.6	24.1	
14-15	140	30	110	263	54.3	53	-0.7	80	150	22.1	11.5	56.6	43	+13.6	13.0	4.8	24.3	
TIME	ARRIVAL DELAYS													DEPARTURE DELAYS			GRAND TOTAL	
	AVERAGE													AVERAGE			TOTAL	
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI IN	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI OUT	RWY CONG.	ARR. DELAY	DEP. DELAY	
	7-8	0	0	0.5	1.5	0.7	0.1	0.4	17	0.7	0.7	20	1.3	0.0	0.1	0.0	1.1	1.4
8-9	0.1	0.1	0.8	2.9	1.8	0.1	1.6	2.8	9.3	7.3	7.3	5.6	0.0	0.3	0.0	2.0	5.9	
9-10	0.2	0.0	3.6	2.0	2.3	0.1	4.5	11.5	17.2	6.7	6.7	11.6	0.0	0.6	0.3	2.5	12.5	
10-11	0.5	0.0	0.9	6.3	3.5	0.1	0.0	2.9	9.9	13.0	11.2	11.0	0.0	0.5	0.6	3.6	12.1	
11-12	0.3	0.0	4.0	8.6	5.2	0.1	0.1	1.2	2.5	11.4	9.5	6.2	0.0	0.4	0.0	5.4	16	
12-13	0.2	0.0	2.3	17.0	9.9	0.1	0.1	3.0	7.8	21.1	12.7	11.6	0.0	0.8	0.7	10.1	13.1	
13-14	0.3	0.0	0.8	8.6	4.5	0.1	0.2	3.2	6.3	31.0	10.0	13.8	0.0	0.5	0.7	4.8	15.0	
14-15	0.1	1.1	1.0	6.7	3.5	0.1	0.1	0.8	1.5	25.5	11.2	12.9	0.0	0.6	1.5	3.7	15.0	

TABLE 6

SUMMARY OF RESULTS

EXPERIMENT NO. 7B

AVERAGE FLOW RATES																	
TIME	ARRIVALS							DEPARTURES							AVERAGE TRAVEL TIME		
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.	FIX TO THRESH.	THRESH. TO GATE	GATE TO ROLL
	ARRIVAL DELAYS							DEPARTURE DELAYS							GRAND TOTAL		
7-8	6.0	0.0	10.0	14.9	30.9	29	+1.9	3.0	19.6	15.2	10.0	47.8	53	-7.2	9.6	4.1	7.7
8-9	10.7	3.0	14.9	19.8	48.4	51	-2.6	8.1	22.9	18.5	8.2	57.7	74	-16.3	11.1	4.8	15.4
9-10	8.3	0.0	17.3	17.8	43.4	46	-2.6	5.9	29.6	16.6	5.1	57.3	62	-4.8	13.4	4.9	24.6
10-11	11.0	4.0	17.5	23.2	55.7	61	-5.3	6.0	24.1	18.1	11.1	59.3	55	+4.3	15.0	4.8	34.5
11-12	15.0	3.0	15.3	23.2	56.5	71	-4.5	3.0	23.6	16.6	14.1	57.3	60	-2.7	21.9	4.5	26.7
12-13	6.0	3.0	15.0	22.8	46.8	50	-3.2	6.0	24.8	19.9	11.3	67.0	74	-7.0	36.3	4.6	23.5
13-14	6.0	1.0	16.0	22.5	45.5	46	-0.5	4.0	35.4	16.5	8.4	54.3	62	-7.7	45.4	5.0	24.6
14-15	17.0	6.0	14.0	22.9	59.9	60	-0.1	7.0	18.0	15.7	12.5	53.2	47	+6.2	34.9	6.2	32.6
AVERAGE																	
GRAND TOTAL																	
TIME	ARRIVALS							DEPARTURES							AVERAGE TRAVEL TIME		
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI-IN	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI-OUT	RWY CONG.	ARR. DELAY	DEP. DELAY
	ARRIVAL DELAYS							DEPARTURE DELAYS							GRAND TOTAL		
7-8	0.2	0.0	0.1	1.2	0.6	0.1	0.0	1.0	1.8	1.6	2.1	1.8	0.0	0.4	0.0	0.7	2.2
8-9	0.3	0.0	0.3	1.0	0.4	0.1	0.1	6.1	8.8	8.9	7.3	8.1	0.0	0.4	0.0	0.6	8.5
9-10	0.6	0.0	5.3	4.0	3.8	0.1	0.5	8.5	7.7	28.4	9.5	15.0	2.0	0.7	0.3	4.4	16.0
10-11	0.3	0.9	3.4	10.7	5.6	0.0	0.4	2.4	8.3	37.5	9.4	16.9	0.0	0.9	1.3	6.0	19.1
11-12	0.2	0.3	1.2	28.9	12.3	0.1	0.1	1.2	2.6	26.7	14.9	12.5	0.0	1.1	1.7	12.5	15.3
12-13	0.0	0.0	1.6	53.9	26.7	0.1	0.4	2.7	6.4	23.8	15.6	12.8	0.0	1.3	1.8	27.2	10.9
13-14	0.5	0.0	1.9	20.8	35.7	0.1	0.6	2.5	2.7	35.5	9.6	13.7	0.0	1.0	1.4	36.4	16.1
14-15	0.8	0.1	0.7	65.4	25.4	0.1	1.8	1.9	5.0	35.1	11.6	15.2	0.0	1.2	2.2	27.3	18.6

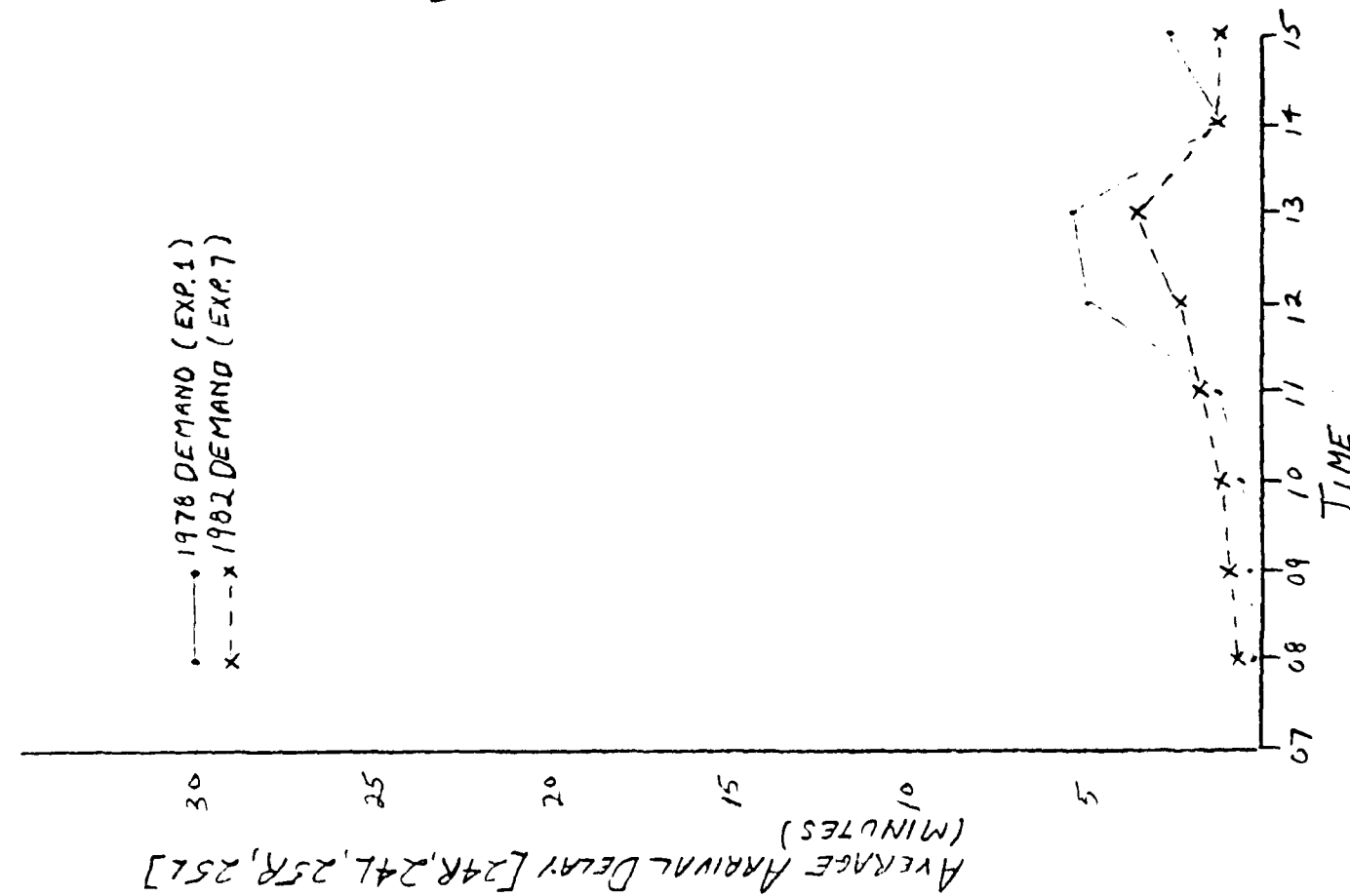
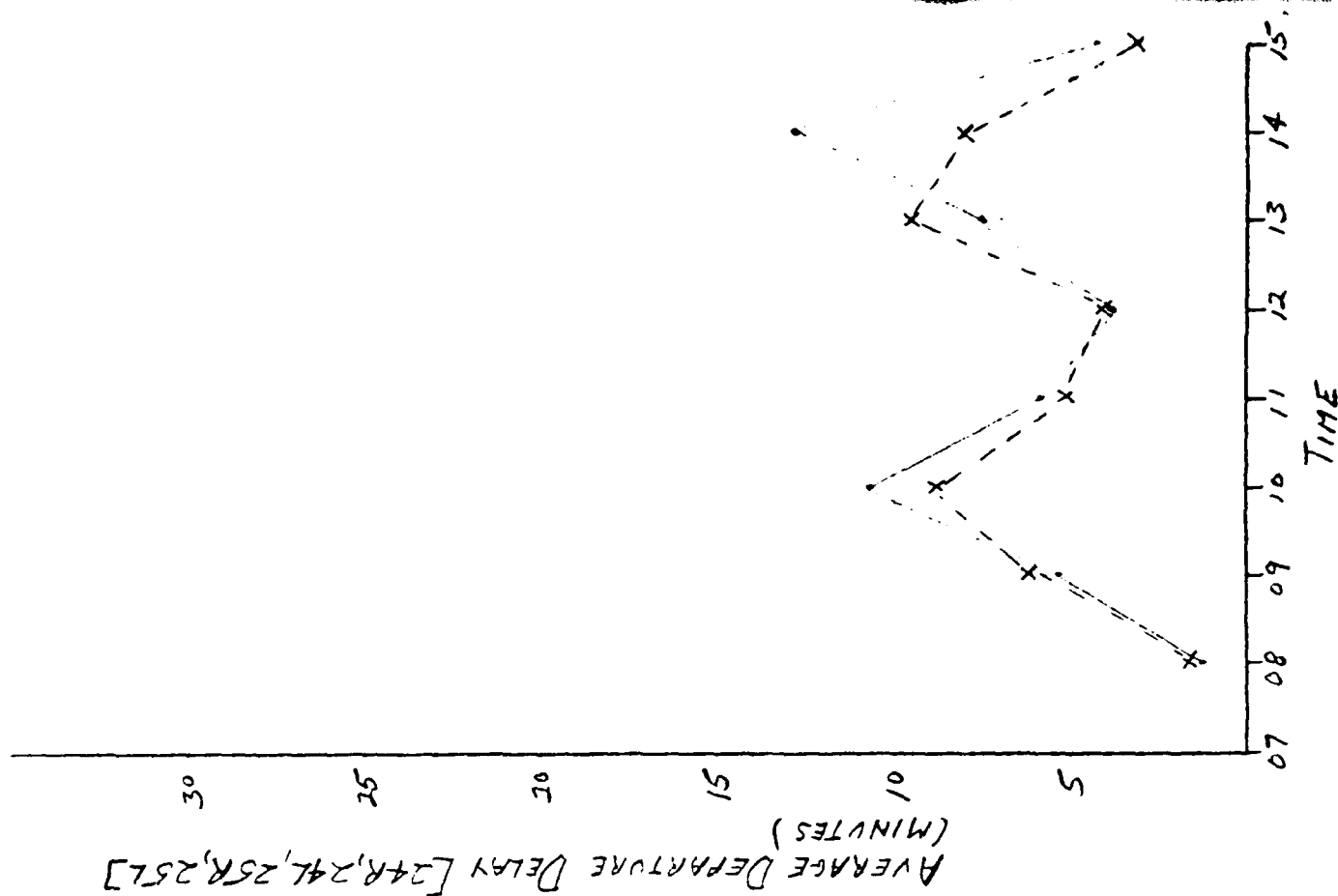


FIGURE 2 R (1978) COMPARISON - WESTERLY FLOW

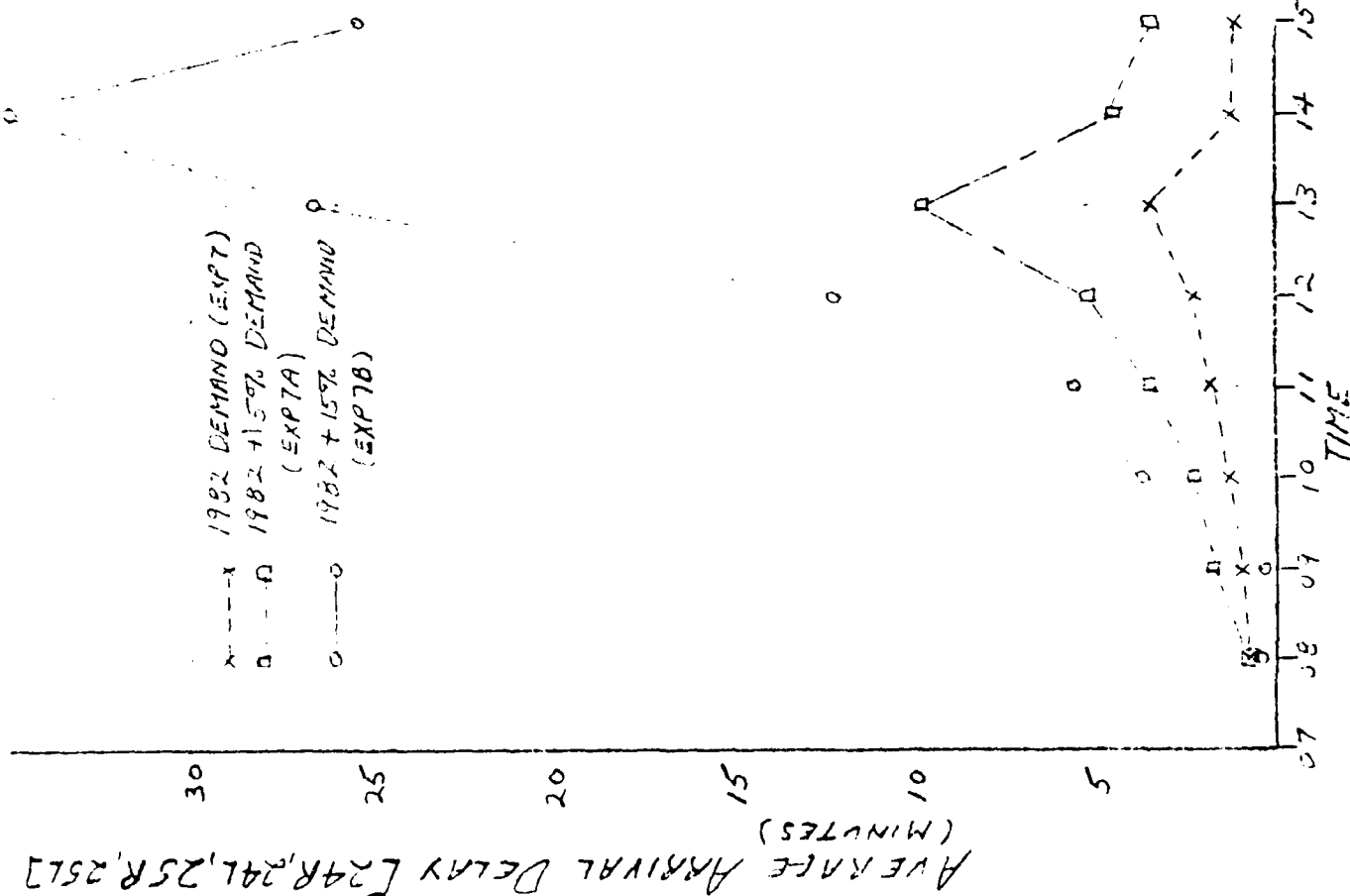
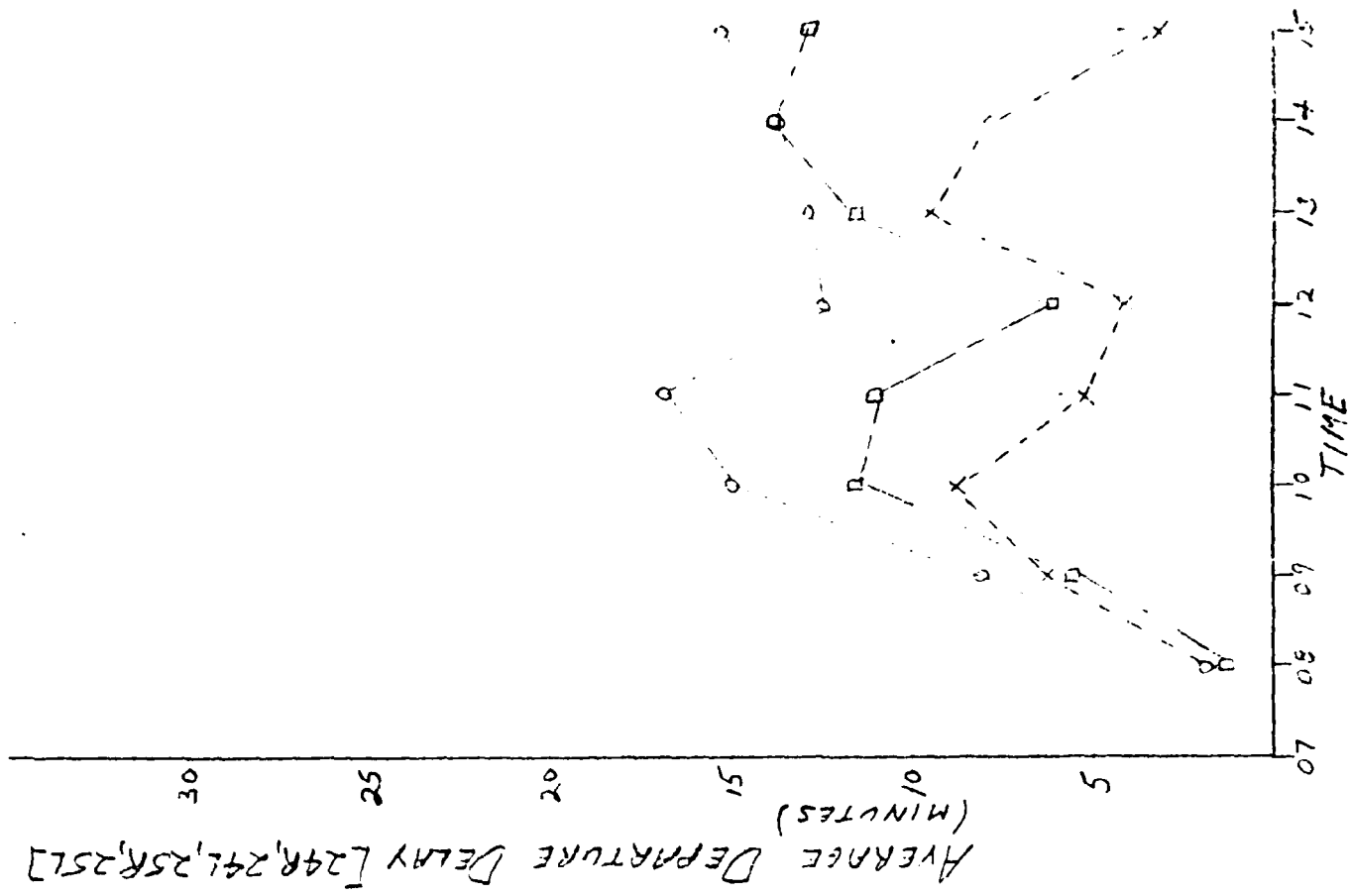


FIGURE 3 VFR (1978) COMPARISON - WESTERLY FLOW

LAX - STAGE 1EXPERIMENT NO. 11Objective:

To assess delays to aircraft in 1982 for the following runway configuration in VFR 1 with an improved ATC system scenario (1982) and the 1982 near-term improvements.

ARRIVAL RUNWAYS

24R, 24L, 25R, 25L

DEPARTURE RUNWAYS

24R, 24L, 25R, 25L

Related Comparison Experiments:

Experiment 13 is identical less improvements #2 (high-speed taxiway off runway 25L) and improvements #3 (strengthening of the Sepulverda tunnel).

Prior Experiment 7 is similar without the noted improvements and a 1978 ATC system scenario.

Prior Experiment 1 is similar without the noted improvements and a 1978 demand and a 1978 ATC system scenario.

TABLE 7
SUMMARY OF RESULTS
EXPERIMENT NO. 11

TIME	AVERAGE FLOW RATES										AVERAGE TRAVEL TIME						
	ARRIVALS					DEPARTURES					TIME			GATE TO ROLL			
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND		DIFF.	FIX TO THRESH.	THRESH. TO GATE
7-8	20	10	60	179	269	25	+1.9	30	13.0	160	100	410	40	-70	9.8	4.7	
8-9	10	10	140	153	433	45	-1.7	22	14.0	250	107	517	64	-123	10.8	4.6	
9-10	60	10	150	193	402	41	-0.7	46	23.0	252	70	59.8	54	+58	12.0	4.1	
10-11	110	30	132	221	502	53	-2.3	41	11.0	198	116	46.5	48	-1.5	12.8	4.7	
11-12	120	30	119	224	57.3	62	-4.7	20	160	180	128	42.8	52	-3.2	15.6	4.7	
12-13	120	10	138	229	49.7	44	+5.7	10	15.7	200	116	48.9	65	-10.1	16.9	5.0	
13-14	80	20	100	213	41.3	40	+1.3	40	17.3	25.7	95	56.5	54	+2.5	12.7	5.4	
14-15	100	50	130	198	47.8	53	-5.2	43	6.7	22.7	109	44.6	41	+3.6	12.4	4.8	
TIME	ARRIVAL DELAYS										DEPARTURE DELAYS					GRAND TOTAL	
	AVERAGE										AVERAGE					TOTAL	
7-8	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI-IN	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI-OUT	RWY CONG.	ARR. DELAY	DEP. DELAY
8-9	0.0	0.0	1.0	2.5	1.2	0.1	0.1	0.2	0.2	13.7	6.1	5.1	0.0	0.6	0.3	1.4	9.0
9-10	0.0	0.0	2.4	3.4	2.7	0.1	0.1	0.7	2.1	18.0	6.7	9.2	0.0	0.3	0.5	2.9	10.0
10-11	0.5	0.4	1.2	5.7	3.0	0.1	0.1	0.6	1.2	18.9	14.8	12.1	0.0	0.9	0.6	3.2	13.6
11-12	0.1	0.5	7.1	9.2	6.1	0.1	0.1	1.9	0.7	19.7	8.8	9.7	0.0	1.1	0.4	6.3	11.2
12-13	0.3	0.0	5.8	12.9	7.7	0.1	0.3	0.8	0.5	27.6	6.3	13.1	0.0	0.8	0.8	8.1	14.7
13-14	0.2	0.0	1.1	6.3	3.6	0.1	1.2	2.7	1.1	23.2	7.6	12.4	0.0	1.5	1.8	4.9	15.7
14-15	0.2	0.1	4.1	4.4	3.0	0.1	0.3	0.2	0.2	27.6	10.1	16.6	0.0	1.4	3.7	3.4	21.7

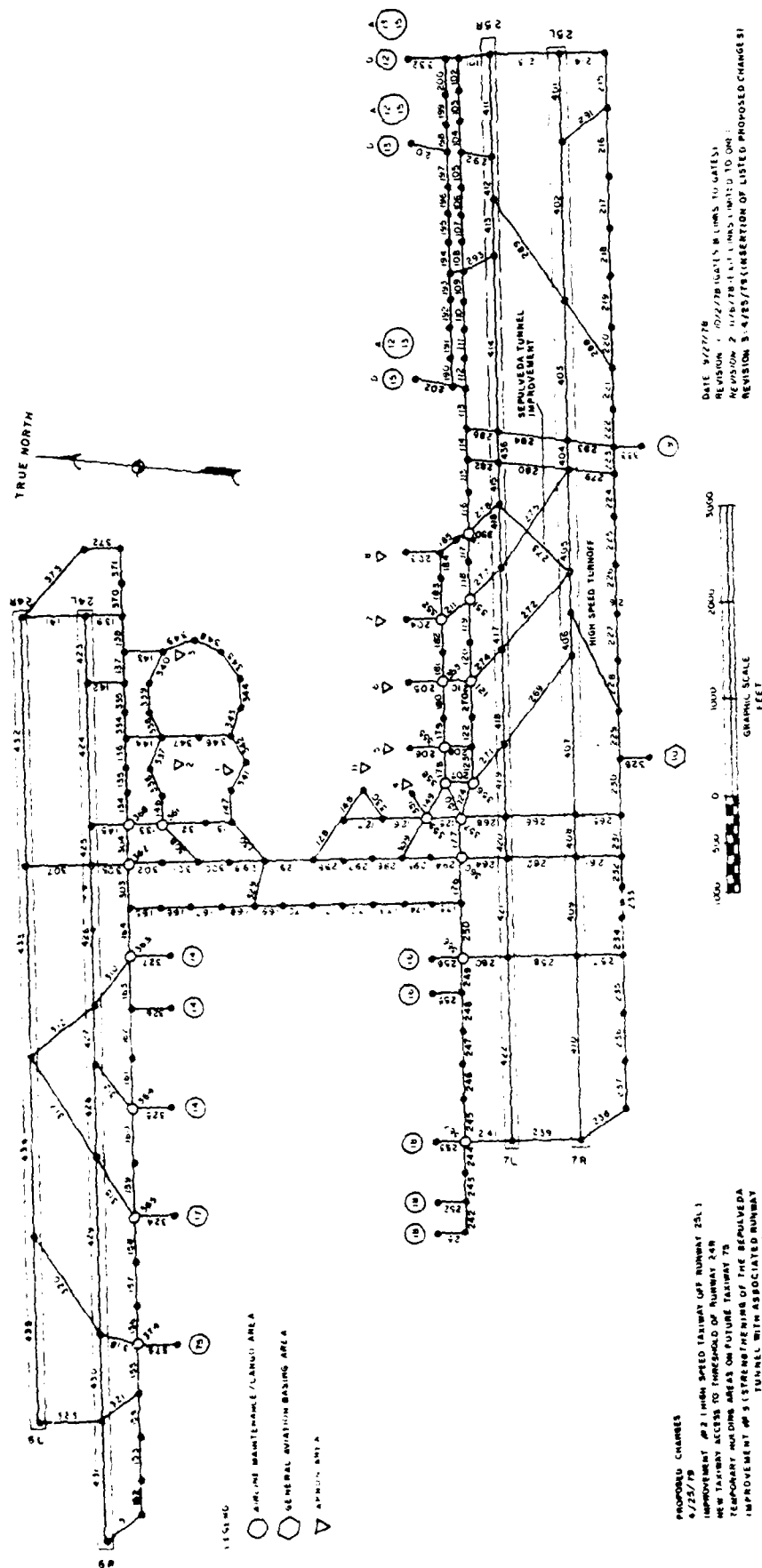


Figure 4 LAX LINK NODE DIAGRAM
(NEAR TERM IMPROVEMENTS)

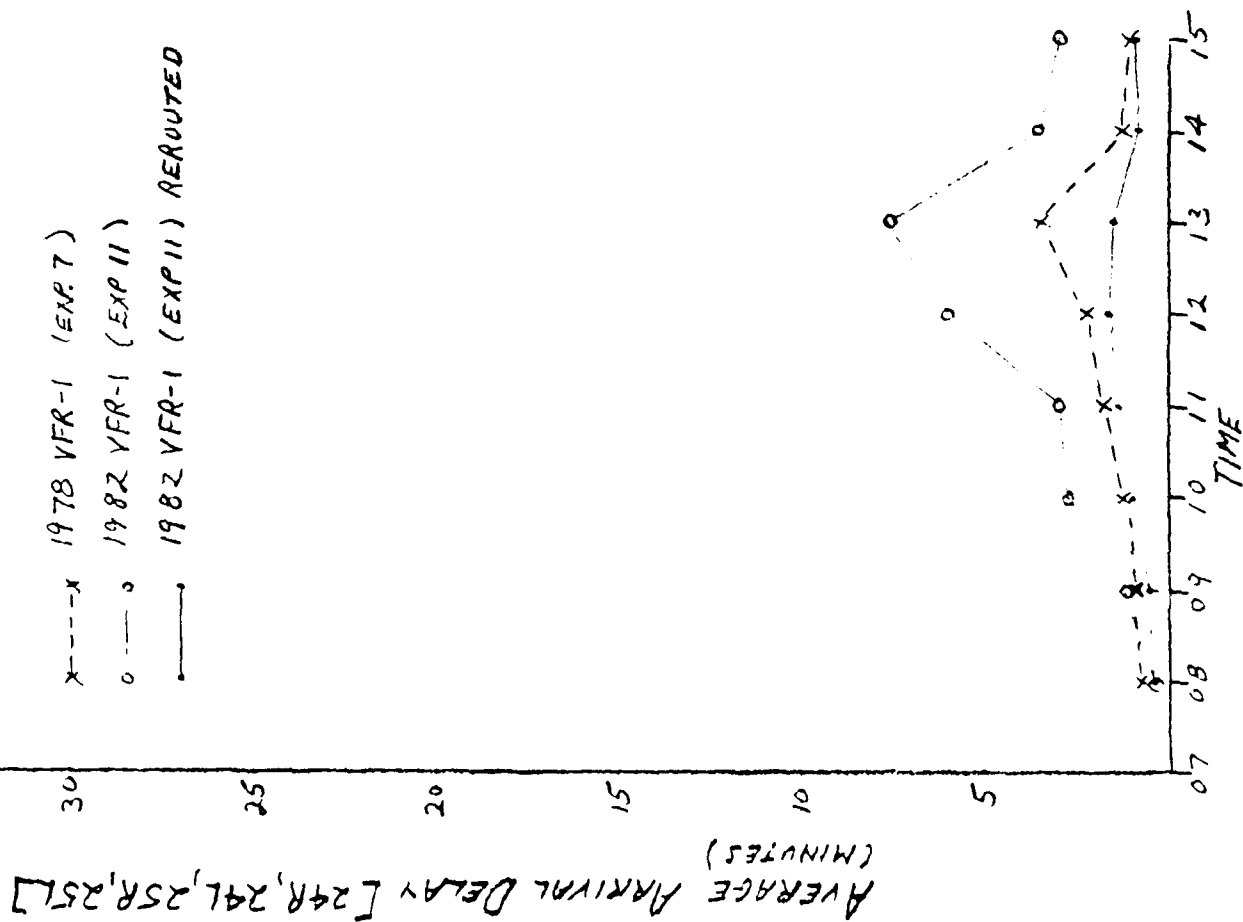
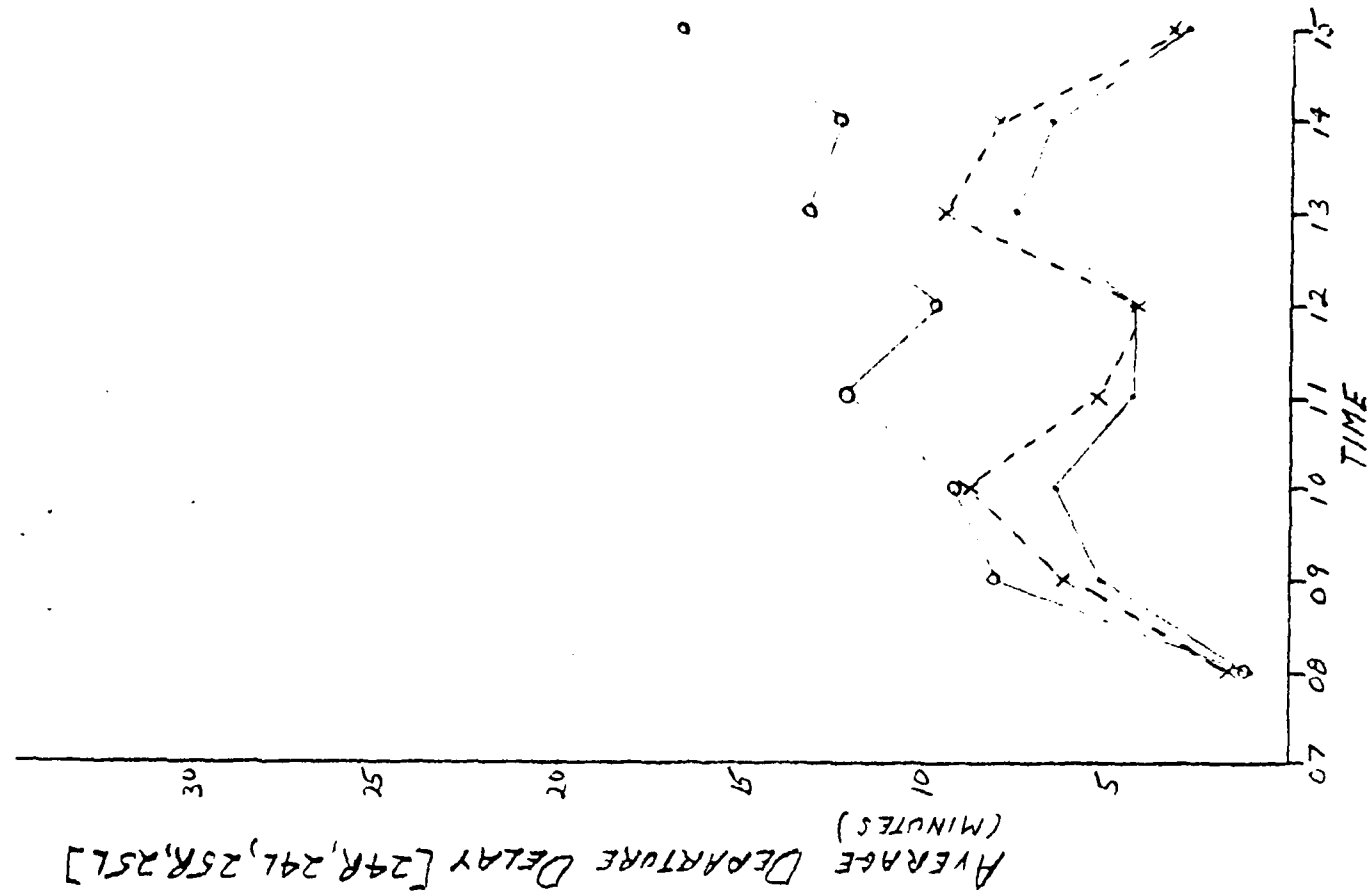


FIGURE 5 VFR (1978 AND 1982) COMPARISON WESTERLY FLOW

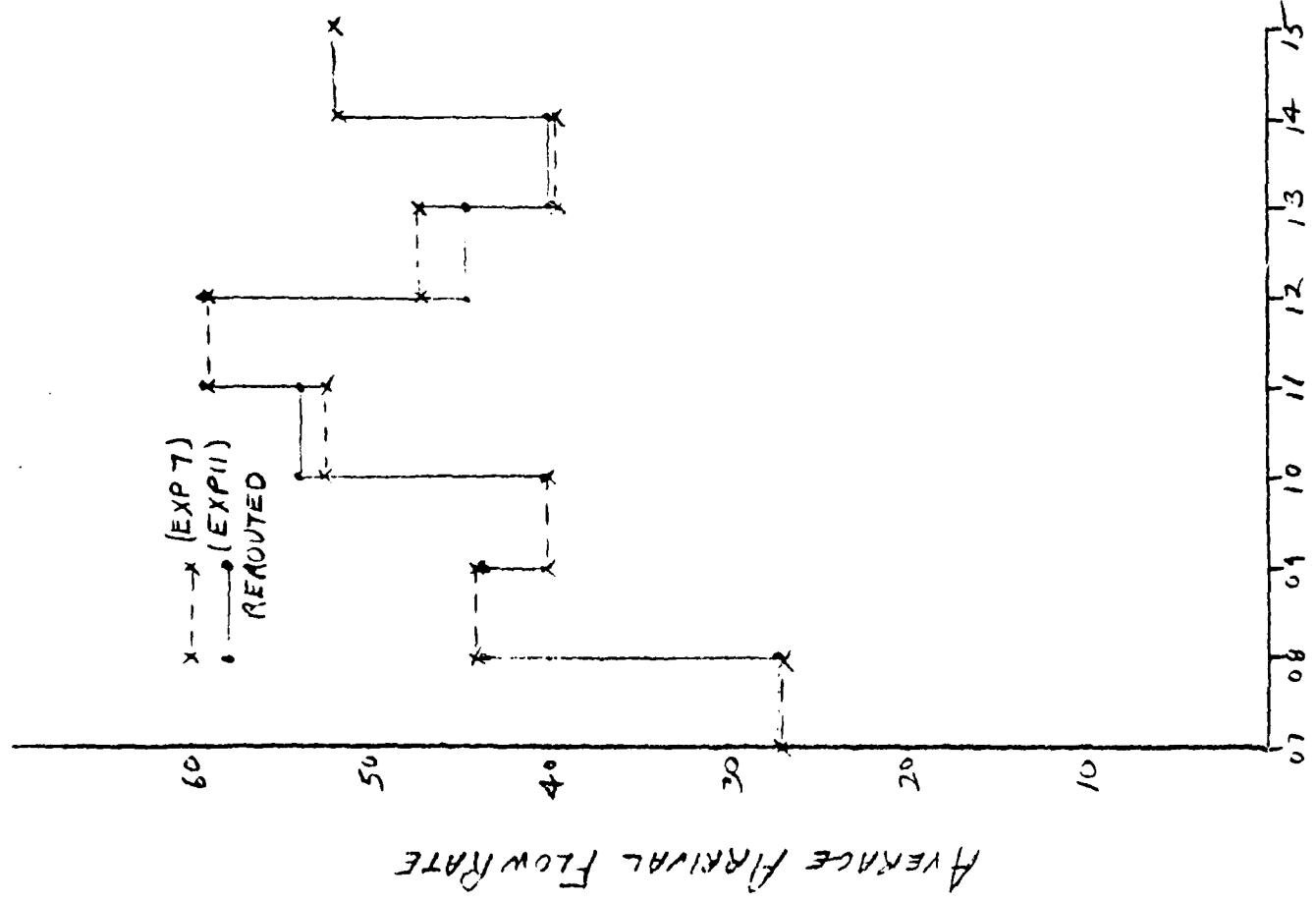
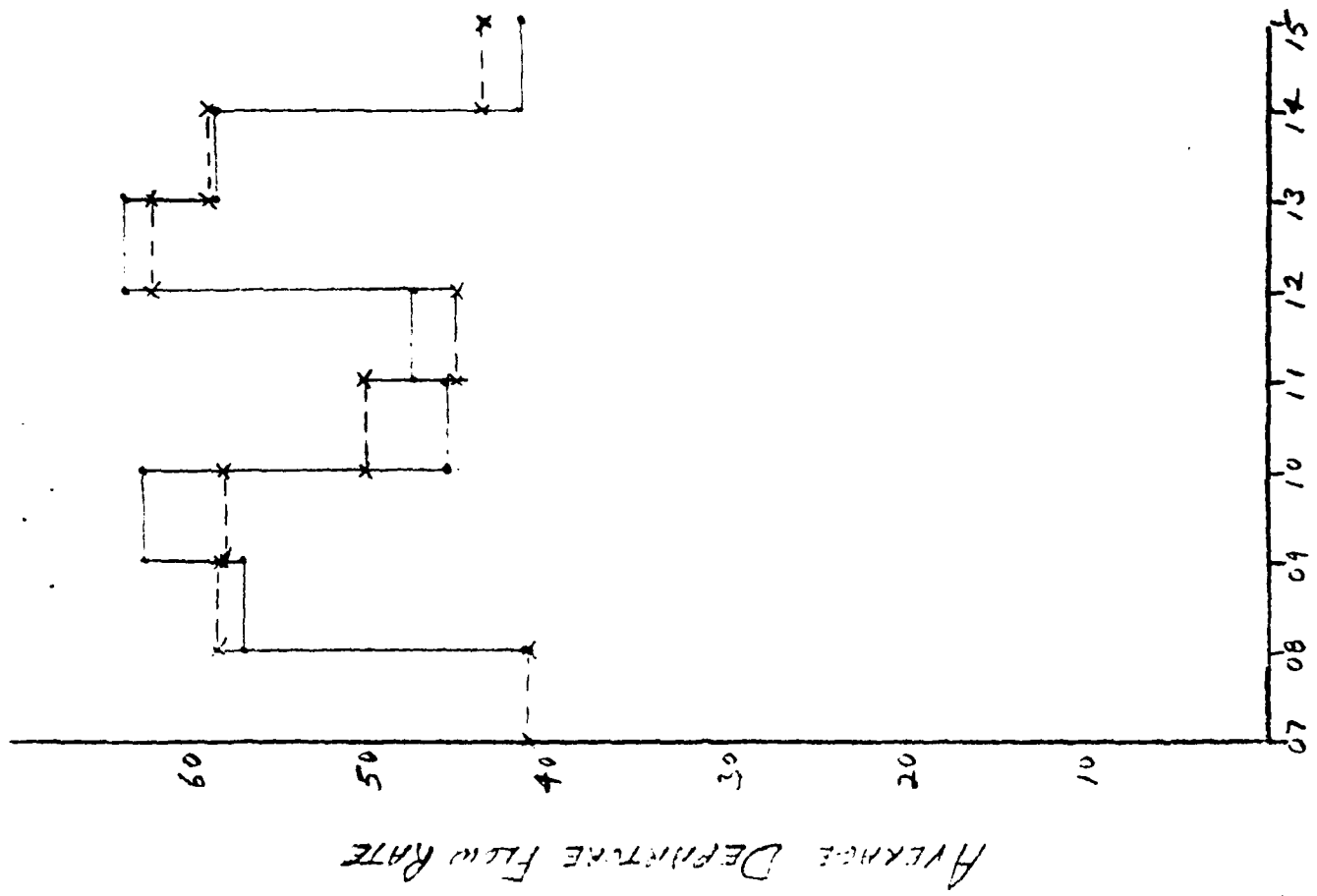


FIGURE 6 VFR (1975) COMPARISON - WESTERNLY FLOW

LAX - STAGE 13EXPERIMENT NO. 13Objective:

To assess the delay impact to aircraft in 1982 for the following runway configuration in VFR 1 with an improved(1982) ATC system scenario and the 1982 near-term improvement less improvement #2 and #3.

ARRIVAL RUNWAYS

24R, 24L, 25R, 25L

DEPARTURE RUNWAYS

24R, 24L, 25R, 25L

Related Comparison Experiments:

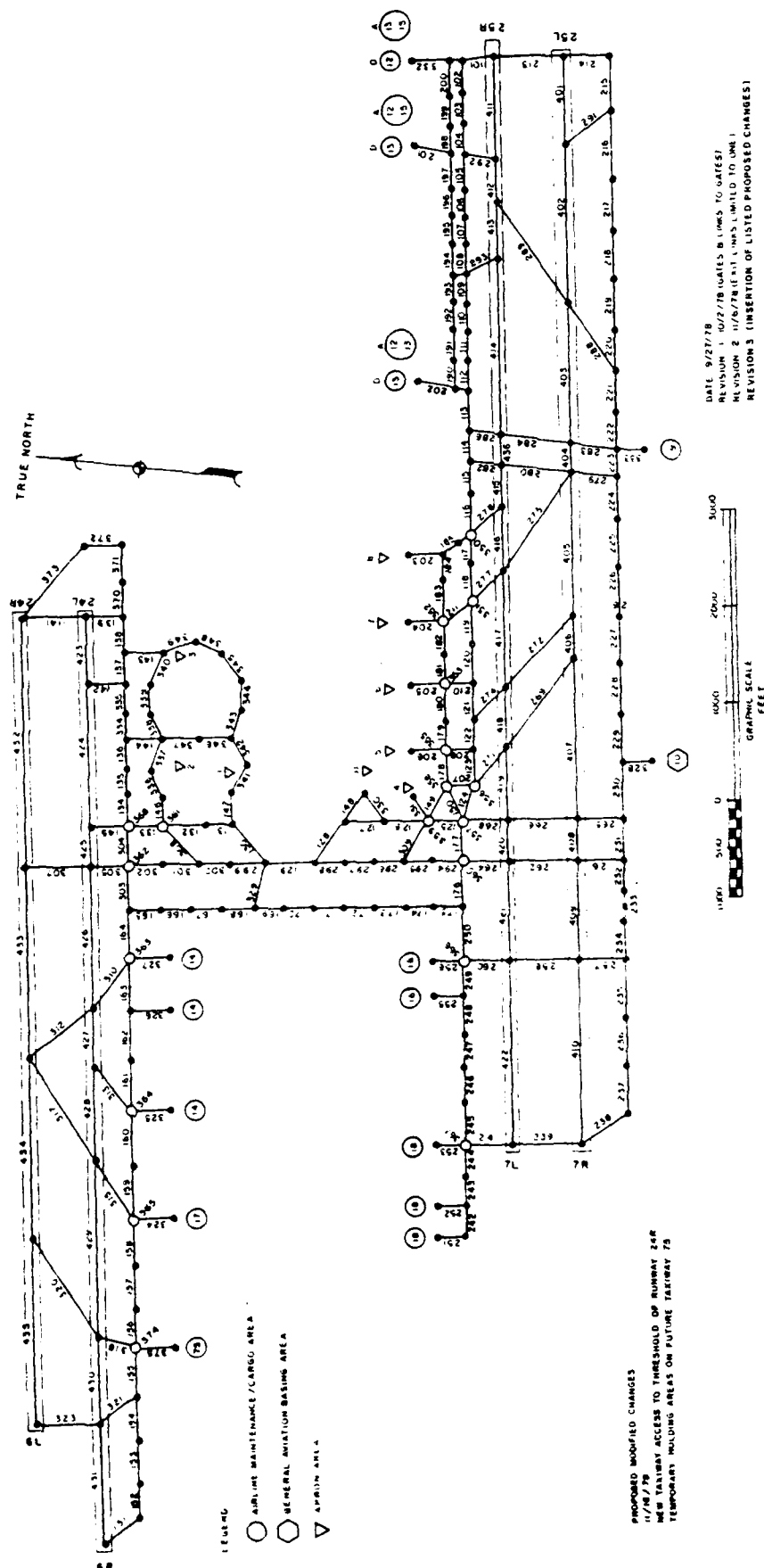
Prior Experiment 11 is similar except improvements #2 and #3 are included in run.

TABLE 9

SUMMARY OF RESULTS

EXPERIMENT NO. 13

TIME	AVERAGE FLOW RATES														AVERAGE TRAVEL TIME		
	ARRIVALS							DEPARTURES							FIX TO THRESH.	THRESH. TO GATE	GATE TO ROLL
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.			
7-8	2.0	1.0	6.0	19.0	27.0	35	-2.0	2.0	16.0	15.0	6.0	51.0	48	-7.0	9.3	4.3	7.4
8-9	10.0	1.0	14.0	17.0	47.0	45	-1.0	6.1	24.4	14.3	5.7	58.1	64	-5.1	10.3	4.4	12.7
9-10	5.0	1.0	15.0	18.0	40.0	41	-1.0	5.5	21.1	12.5	5.2	58.6	54	+2.6	10.4	4.2	15.9
10-11	11.0	3.0	13.7	26.0	52.7	53	+0.7	7.4	20.5	16.4	5.1	49.9	48	+1.4	10.9	4.5	11.1
11-12	12.0	2.0	5.8	21.0	58.6	62	-3.2	5.0	17.2	14.6	9.1	45.9	52	-6.1	11.7	5.7	7.1
12-13	12.0	1.0	10.7	22.0	44.7	49	+2.7	4.0	25.2	20.0	15.0	62.6	65	-2.4	11.3	4.0	16.7
13-14	2.0	2.0	9.8	20.0	34.8	40	+0.5	5.0	24.3	15.4	14.5	50.2	54	+5.2	11.1	4.6	14.7
14-15	10.0	5.0	13.0	24.0	52.0	53	-1.0	5.5	15.1	13.7	11.2	43.5	41	-2.5	10.2	4.4	3.1
GRAND TOTAL																	
TIME	AVERAGE DELAYS														AVERAGE		
	ARRIVAL DELAYS							DEPARTURE DELAYS							RWY CONG.	ARR. DELAY	DEP. DELAY
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI IN	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI OUT			
7-8	0.0	0.0	0.8	0.3	0.7	0.3	0.1	0.7	1.3	2.4	1.6	1.5	0.0	0.2	0.0	0.0	1.9
8-9	0.0	0.0	0.1	0.1	0.1	0.1	0.0	3.6	3.6	10.1	6.7	6.1	0.0	1.3	0.0	1.0	7.4
9-10	0.0	0.0	1.1	1.4	1.1	1.1	0.1	8.2	10.1	5.0	5.3	8.3	0.0	1.5	0.2	1.5	10.0
10-11	0.4	0.3	0.1	2.0	1.3	1.3	0.2	2.3	6.0	3.5	6.1	4.7	0.0	0.7	0.0	1.3	2.6
11-12	0.1	0.4	2.4	2.1	1.7	0.3	0.2	1.8	1.2	4.2	2.7	1.8	0.0	0.7	0.0	2.2	4.2
12-13	0.4	0.0	1.1	3.8	2.2	0.1	0.2	1.7	5.9	14.0	7.5	9.7	0.0	1.8	0.1	2.5	10.6
13-14	0.2	0.0	0.9	1.0	0.3	0.2	0.2	1.8	6.6	7.6	4.0	7.1	0.0	1.7	0.0	1.2	8.8
14-15	0.1	0.0	1.2	1.2	0.4	0.2	0.1	1.8	1.8	2.7	3.0	2.2	0.0	0.5	0.0	1.2	2.5



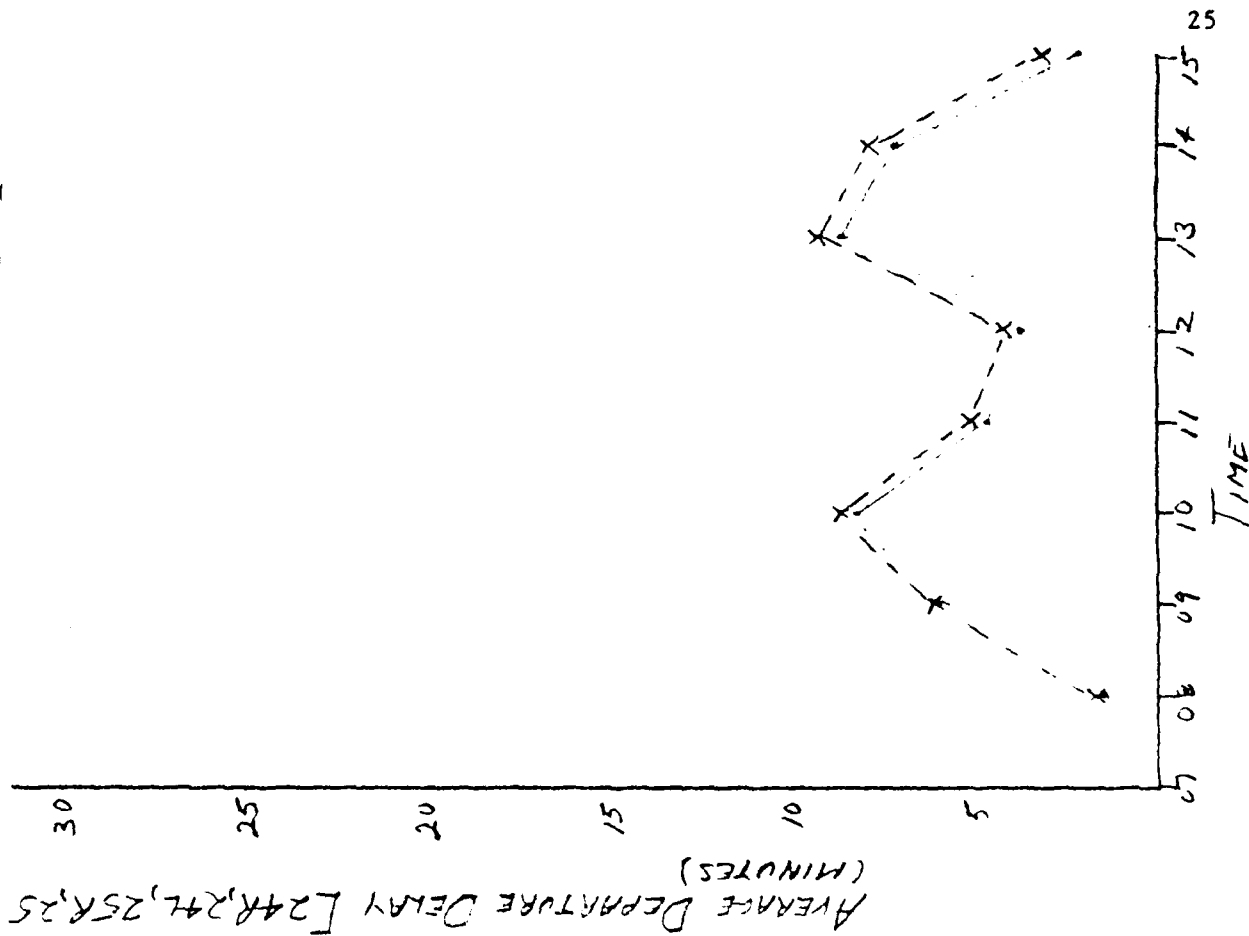
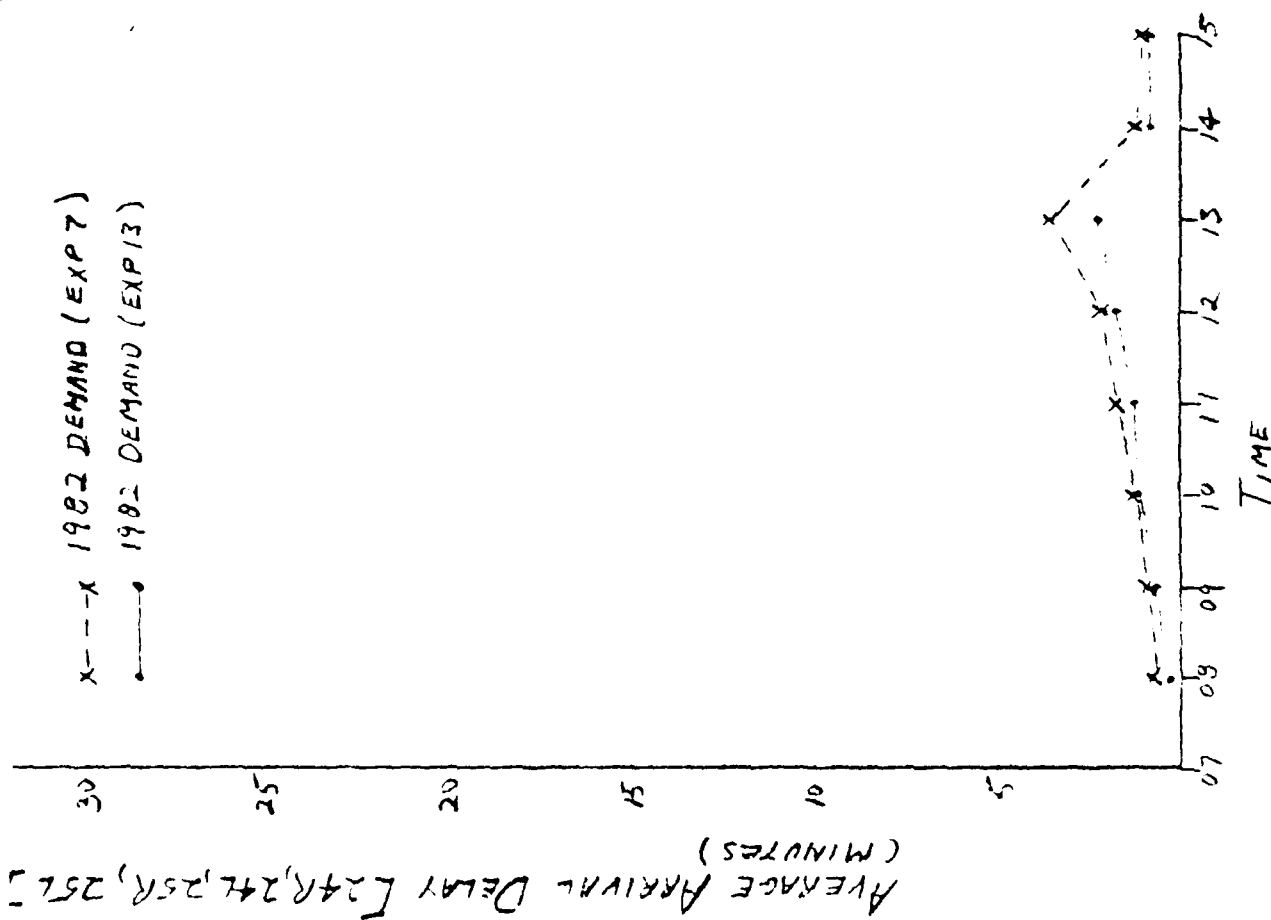


FIGURE 8 VFR (1978 AND 1982) COMPARISON - WESTERLY FLOW

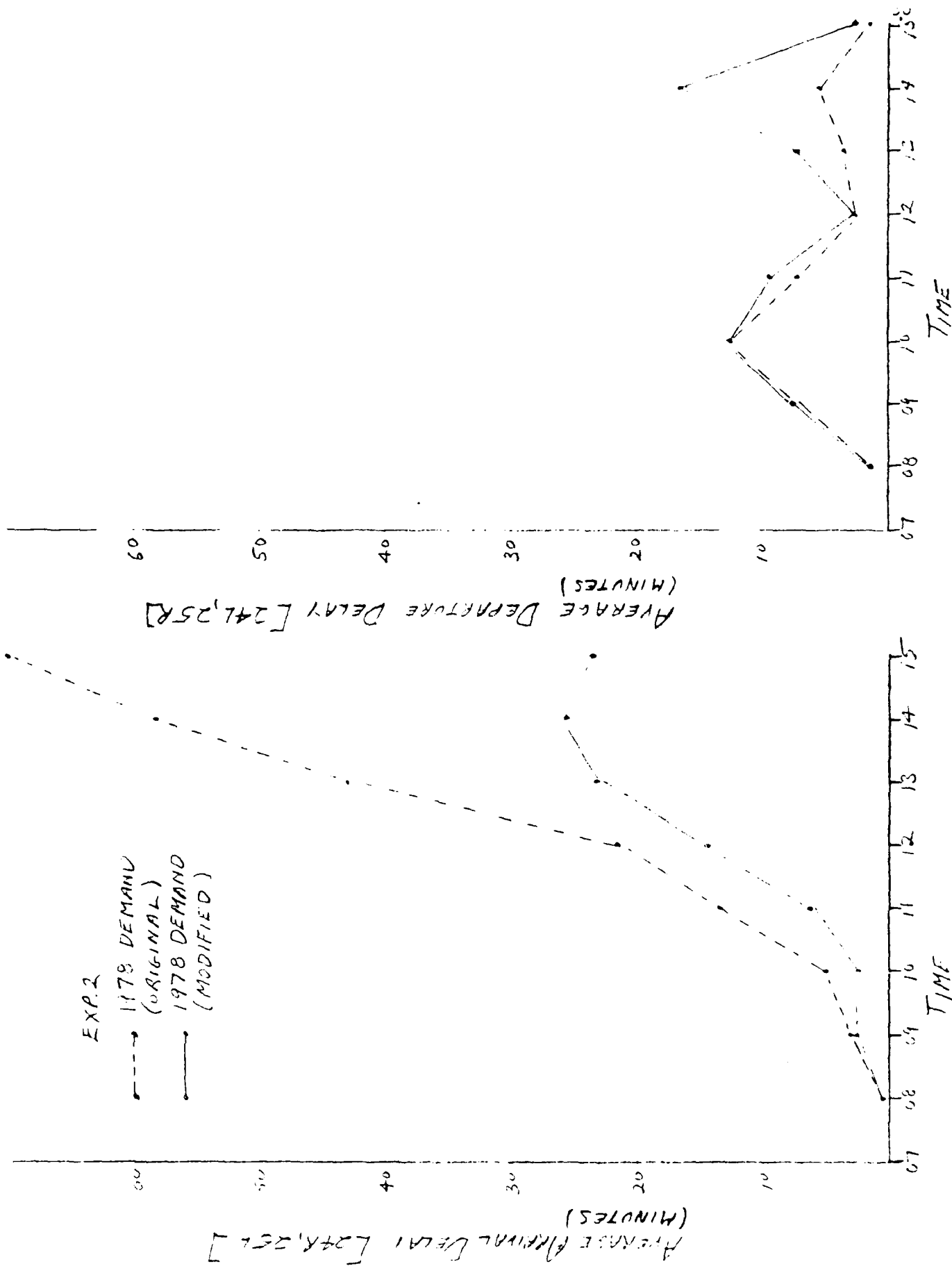


FIGURE 7 IFR-1 (1978) COMPARISON - WESTERN FLOW

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LAX - STAGE 1

EXPERIMENT NO. 3

Objective:

To obtain baseline delay estimates for the following runway configuration in IFR 2 with 1978 demand.

ARRIVAL RUNWAYS

24R, 25L

DEPARTURE RUNWAYS

24L, 25R

Related Comparison Experiments:

Prior Experiment 2 is similar except for IFR 1 conditions.

TABLE 13

SUMMARY OF RESULTS

EXPERIMENT NO. 3 (MODIFIED DEMAND)

AVERAGE FLOW RATES																	
TIME	ARRIVALS					DEPARTURES					AVERAGE TRAVEL TIME						
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.	FIX TO THRESH.	THRESH. TO GATE	GATE TO ROLL
7-8	12.0	0.0	0.0	18.0	30.0	29	+1.0	0.0	20.0	0.0	0.0	10.0	48	-7.5	10.0	4.4	16.0
8-9	16.0	0.0	0.0	18.0	30.0	39	-3.0	0.0	19.0	0.0	0.0	40.8	61	-23.2	12.8	4.5	23.5
9-10	14.0	0.0	0.0	33.7	47.7	40	-2.2	0.0	35.5	18.1	0.0	53.0	52	-13.4	14.7	5.1	40.9
10-11	17.0	0.0	0.0	33.0	40.0	50	-10.0	0.0	22.2	14.7	0.0	36.6	48	-11.4	20.0	9.1	58.0
11-12	21.8	0.0	0.0	23.0	44.8	59	-14.2	0.0	19.0	14.0	0.0	35.0	52	-17.0	31.1	6.2	73.4
12-13	21.8	0.0	0.0	23.6	44.4	45	-0.0	0.0	15.0	15.7	0.0	33.7	65	-21.2	44.8	7.2	82.6
13-14	18.4	0.0	0.0	22.6	41.0	43	-1.0	0.0	20.1	15.5	0.0	36.4	51	-14.6	52.4	9.5	85.0
14-15	18.2	0.0	0.0	22.6	40.1	47	-0.1	0.0	20.1	14.5	0.0	35.4	39	-3.6	51.5	16.4	90.0
ARRIVAL DELAYS																	
DEPARTURE DELAYS																	
AVERAGE																	
AVERAGE																	
TIME	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI IN	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI OUT	RWY CONG.	ARR. DELAY	DEP. DELAY
7-8	1.7	0.0	0.0	0.6	2.3	0.3	1.1	0.0	1.0	7.0	0.0	7.5	0.0	0.2	0.0	0.9	4.3
8-9	4.0	0.0	0.0	2.1	6.1	0.3	2.2	0.0	15.7	12.2	0.0	16.5	0.0	0.4	0.9	3.5	17.0
9-10	1.0	0.0	0.0	8.0	5.4	0.3	0.5	0.0	25.8	33.9	0.0	25.5	0.0	0.5	6.1	6.2	35.1
10-11	1.2	0.0	0.0	12.6	10.6	0.2	4.6	0.0	23.6	52.5	0.0	47.8	0.0	0.9	16.8	15.4	52.4
11-12	9.3	0.0	0.0	33.9	31.9	0.3	1.9	0.0	30.7	52.3	0.0	72.7	0.0	1.3	33.9	24.1	77.9
12-13	25.4	0.0	0.0	54.3	40.1	0.2	2.3	0.0	51.9	72.5	0.0	50.4	0.0	1.2	25.4	42.6	77.0
13-14	9.6	0.0	0.0	20.6	15.2	0.3	4.7	0.0	33.4	65.2	0.0	46.9	0.0	1.0	31.9	43.2	79.9
14-15	2.5	0.0	0.0	7.7	42.1	0.4	11.5	0.0	21.2	56.8	0.0	40.3	0.0	1.1	43.9	34.1	85.3

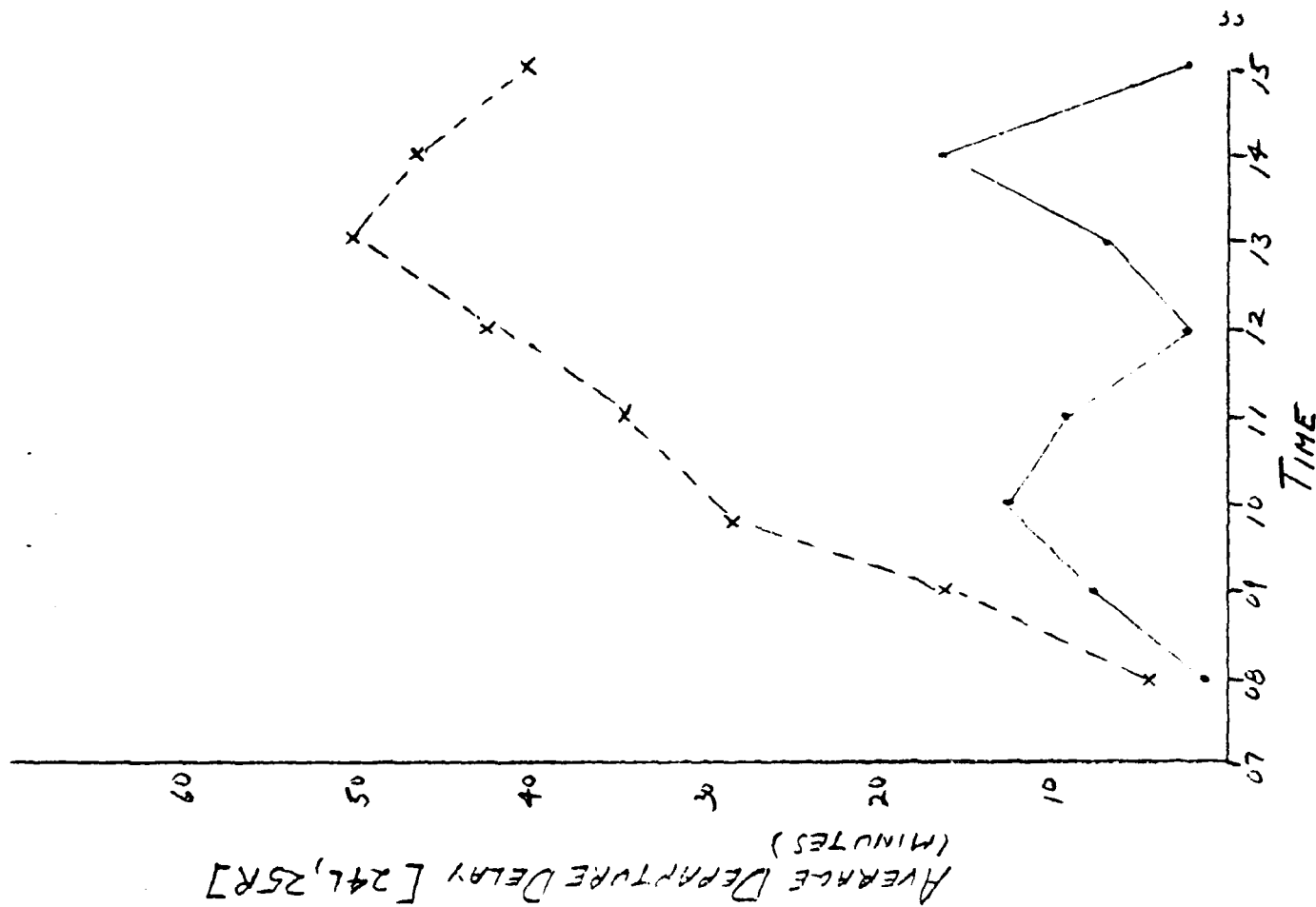
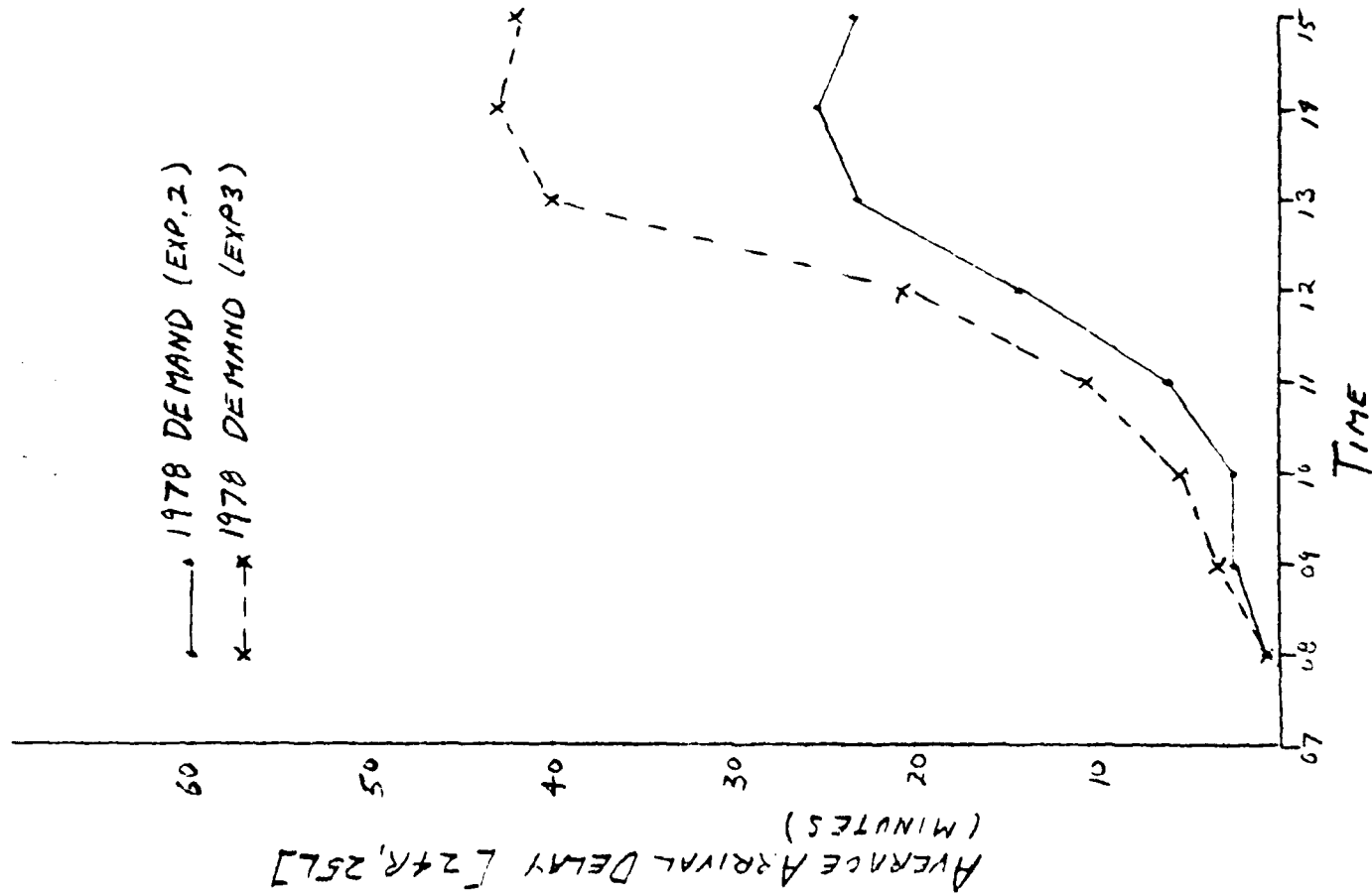


FIGURE 10 IFR-1 / IFR-2 (1978) COMPARISON - WESTERLY FLOW

LAX - STAGE 1
EXPERIMENT NO. 8

Objective:

To obtain baseline delay estimates for the following runway configurations in IFR 1 for 1982 demand.

To obtain delay estimates for 1982 with no improvements to the airport.

ARRIVAL RUNWAYS

24R, 24L, 25R, 25L

DEPARTURE RUNWAYS

24L, 25R

Related Comparison Experiments:

Experiment 12 is identical but with an improved ATC system (1982) scenario and the 1982 near-term improvements.

Prior Experiment #2 is identical except for a 1978 demand.

TABLE 14

SUMMARY OF RESULTS

EXPERIMENT NO. 8 (MODIFIED PLANNING)

TIME	AVERAGE FLOW RATES															AVERAGE TRAVEL TIME		
	ARRIVALS					DEPARTURES					AVERAGE TRAVEL TIME					FIX TO THRESH.	THRESH. TO GATE	GATE TO ROLL
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.				
7-8	4.0	0	0	22.0	26.0	35	+10	0	18.0	23.0	0	41.0	48	-7.0	12.2	4.1	7.4	
8-9	20.0	0	0	24.1	44.1	45	-0.1	0	24.8	27.9	0	52.7	64	-11.3	13.9	4.6	14.7	
9-10	2.0	0	0	25.5	33.5	41	-7.5	0	35.3	23.8	0	59.1	54	+5.1	17.9	2.4	12.8	
10-11	20.0	0	0	22.0	42.0	53	-4.1	0	31.6	20.4	0	52.0	48	+4.0	20.9	4.7	19.0	
11-12	25.4	0	0	27.4	52.8	62	-9.2	0	23.2	27.9	0	51.1	52	-0.4	26.1	4.7	9.1	
12-13	24.2	0	0	26.1	50.3	44	+6.3	0	26.1	32.7	0	58.8	65	-5.2	35.7	7.7	12.0	
13-14	14.5	0	0	25.1	39.6	40	-0.4	0	31.2	23.4	0	54.6	54	-0.6	30.1	4.6	14.8	
14-15	21.1	0	0	26.5	47.6	53	-5.4	0	20.1	25.7	0	45.8	41	+4.8	29.5	4.7	9.0	
ARRIVAL DELAYS																		
DEPARTURE DELAYS																		
AVERAGE																		
TIME	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI-IN	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI-OUT	RWY CONG.	ARR. DELAY	DEP. DELAY	
	7-8	0.0	0	0	4.3	3.6	0.2	0.1	0	0.8	2.2	0	1.6	0.0	0.3	0.0	3.5	1.1
	8-9	2.7	0	0	5.7	4.3	0.3	0.1	0	9.3	7.3	0	8.2	0.0	0.6	0.1	4.6	1.1
9-10	0.0	0	0	10.9	8.3	0.2	0.2	0	13.5	4.8	0	10.0	0.0	0.7	2.3	8.7	13.0	
10-11	2.8	0	0	16.7	11.0	0.2	0.1	0	12.8	3.9	0	9.3	0.0	0.5	2.8	1.3	12.6	
11-12	8.7	0	0	22.3	16.3	0.2	0.1	0	4.4	3.1	0	3.2	0.0	1.2	0.1	16.5	3.5	
12-13	14.0	0	0	38.3	26.6	0.2	0.1	0	7.5	5.1	0	6.1	0.0	0.3	0.0	26.7	6.4	
13-14	5.5	0	0	30.3	21.2	0.2	0.1	0	5.9	5.6	0	8.7	0.0	0.4	0.1	21.5	1.2	
14-15	2.3	0	0	34.5	20.2	0.2	0.1	0	3.6	2.7	0	3.2	0.0	0.2	0.1	20.5	3.5	

TABLE 15

SUMMARY OF RESULTS

EXPERIMENT NO. 8A (MODIFIED DEMAND)

TIME	AVERAGE FLOW RATES													AVERAGE TRAVEL TIME					
	ARRIVALS					DEPARTURES					DIFF.	FIX TO THRESH.	THRESH. TO GATE	GATE TO ROLL					
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	RWY 24R	RWY 24L	RWY 25R	RWY 25L					AVG. TOTAL FLOW	DE-MAND			
7-8	7.0	0.0	0.0	21.5	28.5	26	13.5	0.0	24.0	20.0	0.0	47.0	50	5.0	12.2	4.1	7.3		
8-9	17.4	0.0	0.0	24.3	41.7	47	-5.3	0.0	24.0	30.6	0.0	54.6	67	-12.4	14.3	4.6	13.2		
9-10	11.5	0.0	0.0	26.5	38.0	43	-5.0	0.0	29.7	26.7	0.0	56.4	57	-0.6	18.6	4.4	20.0		
10-11	11.4	0.0	0.0	26.1	46.0	56	-10.0	0.0	27.2	28.6	0.0	55.8	50	+5.8	24.6	4.5	22.1		
11-12	25.0	0.0	0.0	28.0	53.0	65	-12.0	0.0	27.8	22.5	0.0	50.3	55	-4.7	32.7	4.5	9.9		
12-13	23.6	0.0	0.0	23.2	46.8	46	+2.6	0.0	26.4	21.1	0.0	57.3	68	-10.7	41.4	4.7	17.9		
13-14	17.1	0.0	0.0	24.1	41.2	42	-0.8	0.0	28.1	30.0	0.0	58.1	57	+1.1	54.8	4.7	18.9		
14-15	23.4	0.0	0.0	26.3	49.7	55	-5.3	0.0	27.8	22.5	0.0	50.3	43	+7.3	99.9	4.8	14.9		
TIME	ARRIVAL DELAYS													DEPARTURE DELAYS				GRAND TOTAL	
	AVERAGE													AVERAGE				TOTAL	
7-8	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI-IN	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI-OUT	RWY CONG.	RWY ARR. DELAY	DEP. DELAY		
8-9	0.0	0.0	0.0	2.8	2.9	0.2	0.7	0.0	1.4	1.5	0.0	1.4	0.0	0.3	0.0	3.8	1.7		
9-10	1.3	0.0	0.0	7.7	5.0	0.2	0.2	0.0	6.6	7.3	0.0	6.7	0.0	0.6	0.1	5.4	7.6		
10-11	0.5	0.0	0.0	12.8	9.1	0.2	0.1	0.0	15.1	9.4	0.0	12.4	0.0	0.6	1.3	4.4	14.3		
11-12	4.6	0.0	0.0	22.0	15.2	0.1	0.1	0.0	18.3	6.7	0.0	12.4	0.0	0.4	3.7	5.4	16.5		
12-13	12.1	0.0	0.0	22.9	23.1	0.1	0.1	0.0	4.3	1.9	0.0	3.2	0.0	0.4	0.1	23.3	3.7		
13-14	9.2	0.0	0.0	55.1	31.9	0.2	0.1	0.0	12.5	10.7	0.0	11.5	0.0	0.2	0.6	32.2	12.3		
14-15	2.4	0.0	0.0	76.4	45.8	0.3	0.1	0.0	14.2	10.3	0.0	12.1	0.0	0.4	1.0	46.1	13.5		
14-15	6.8	0.0	0.0	70.6	40.5	0.2	0.1	0.0	10.6	5.0	0.0	8.2	0.0	0.2	0.6	40.8	7.0		

TABLE 16

SUMMARY OF RESULTS

EXPERIMENT NO. 88 (MODIFIED DEMAND)

TIME	AVERAGE FLOW RATES													AVERAGE TRAVEL TIME			
	ARRIVALS					DEPARTURES					DIFF.			FIX TO THRESH.	THRESH. TO GATE	GATE TO ROLL	
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND				
7-8	7.0	0.0	0.0	22.4	29	-2.4	2.0	22.6	25.4	0.0	48.0	55	-7.0	11.4	4.1	8.0	
8-9	21.1	0.0	0.0	23.0	51	-6.4	0.0	25.0	28.9	0.0	53.9	74	-20.1	13.4	4.8	17.5	
9-10	14.9	0.0	0.0	22.9	46	-5.2	0.0	26.7	28.9	0.0	55.6	62	-6.4	21.7	5.0	29.5	
10-11	18.8	0.0	0.0	24.1	51	-7.1	0.0	27.3	32.1	0.0	59.4	55	+4.4	31.7	4.6	34.8	
11-12	22.3	0.0	0.0	26.8	71	-1.1	0.0	32.0	27.0	0.0	53.0	60	-1.0	49.1	4.6	27.2	
12-13	31.9	0.0	0.0	22.5	50	-0.2	0.0	29.1	30.2	0.0	64.3	74	-9.7	67.7	4.7	21.7	
13-14	22.1	0.0	0.0	25.6	46	+1.7	0.0	27.5	29.3	0.0	56.8	62	-5.4	74.6	4.9	23.0	
14-15	22.2	0.0	0.0	28.3	60	-1.5	0.0	28.2	23.8	0.0	52.0	47	+5.0	71.3	4.7	24.2	
TIME	ARRIVAL DELAYS					DEPARTURE DELAYS					TAXI-OUT			RWY CONG.	ARR. DELAY	DEP. DELAY	
	AVERAGE					AVERAGE					ALL RWY	RWY CROSS	TAXI-OUT				
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	RWY 24R	RWY 24L	RWY 25R	RWY 25L							
	7-8	0.0	0.0	0.0	3.4	2.6	0.1	0.0	1.9	2.3	0.0	2.1	0.0	0.4	0.0	2.8	2.5
8-9	3.5	0.0	0.0	4.2	3.8	0.1	0.0	15.2	9.6	0.0	11.2	0.0	0.4	0.3	4.1	11.9	
9-10	4.9	0.0	0.0	17.3	13.4	0.3	0.0	20.1	17.7	0.0	18.7	0.0	0.6	4.6	13.1	23.9	
10-11	5.3	0.0	0.0	35.4	22.2	0.2	0.0	22.1	16.2	0.0	19.0	0.0	0.7	9.3	22.0	24.0	
11-12	21.8	0.0	0.0	54.5	39.6	0.1	0.0	17.6	2.7	0.0	10.7	0.0	1.0	9.7	40.0	21.4	
12-13	34.5	0.0	0.0	73.2	58.2	0.2	0.0	16.1	3.5	0.0	10.2	0.0	0.8	4.9	58.6	15.9	
13-14	36.5	0.0	0.0	89.9	65.1	0.2	0.0	16.9	5.9	0.0	11.1	0.0	0.5	5.5	55.5	17.4	
14-15	16.8	0.0	0.0	96.7	61.6	0.2	0.0	15.4	5.6	0.0	12.7	0.0	0.5	5.0	62.0	18.2	

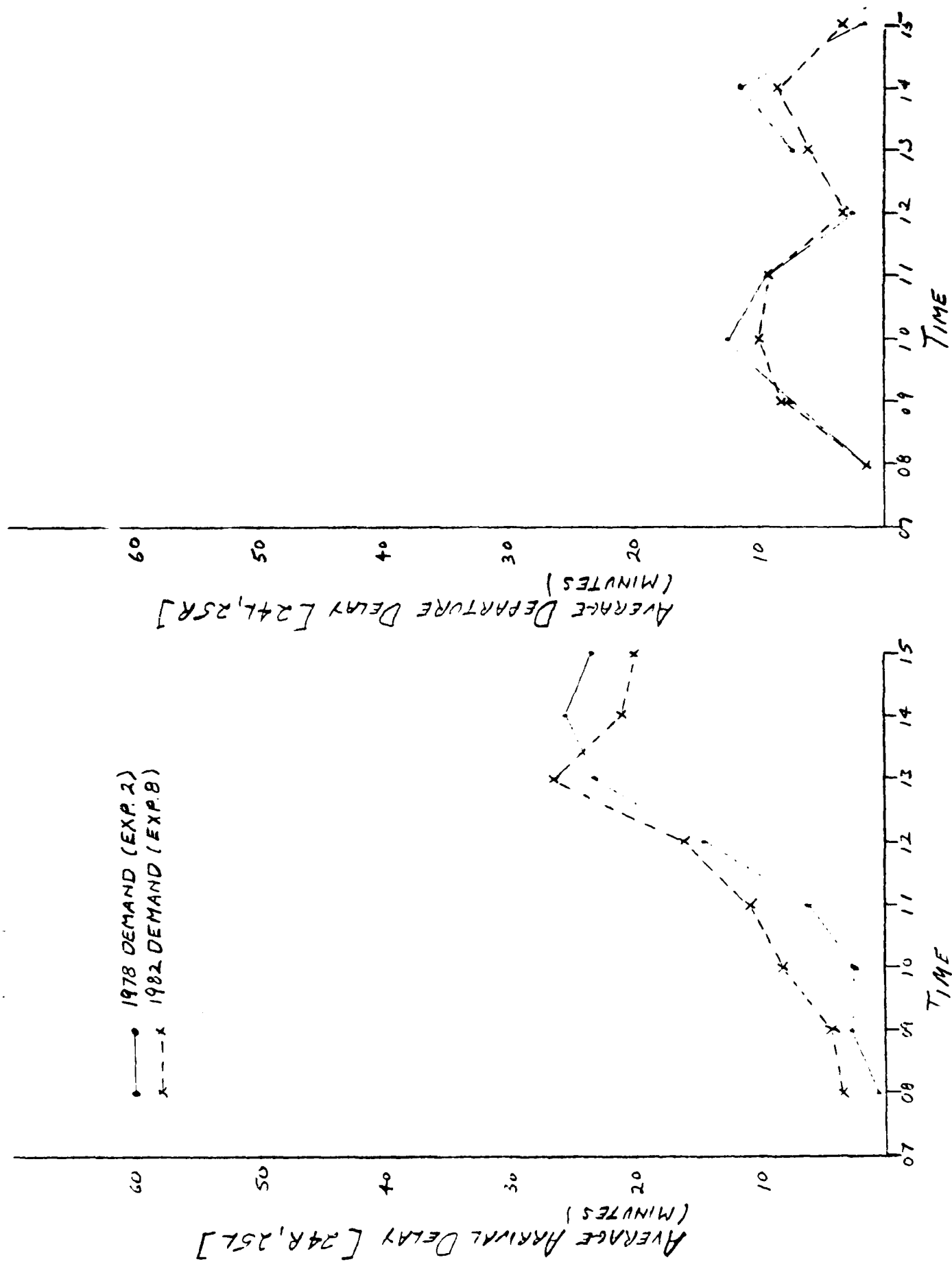


FIGURE 11 IFR-1 (1978) COMPARISON - WESTERLY FLOW

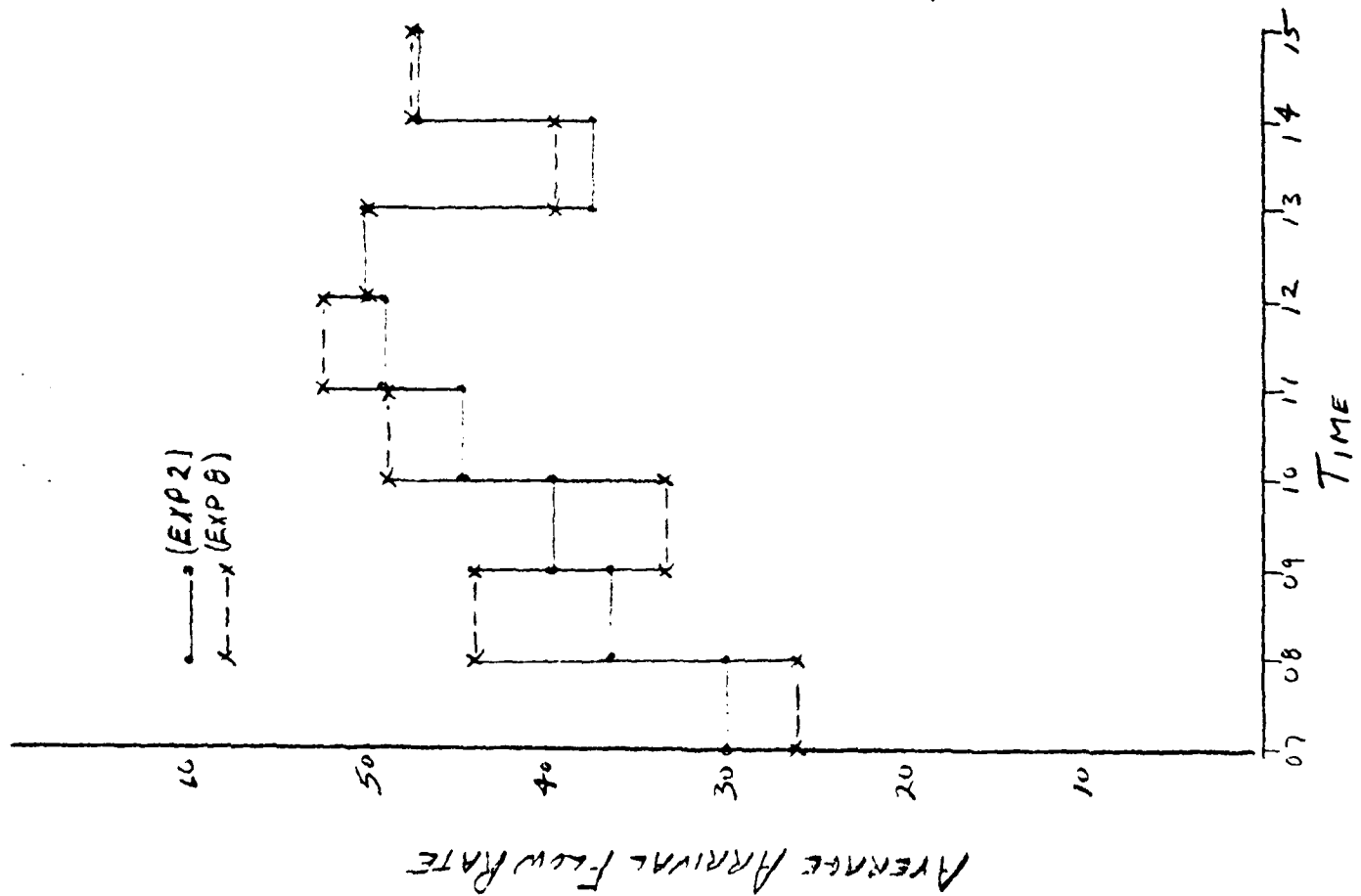
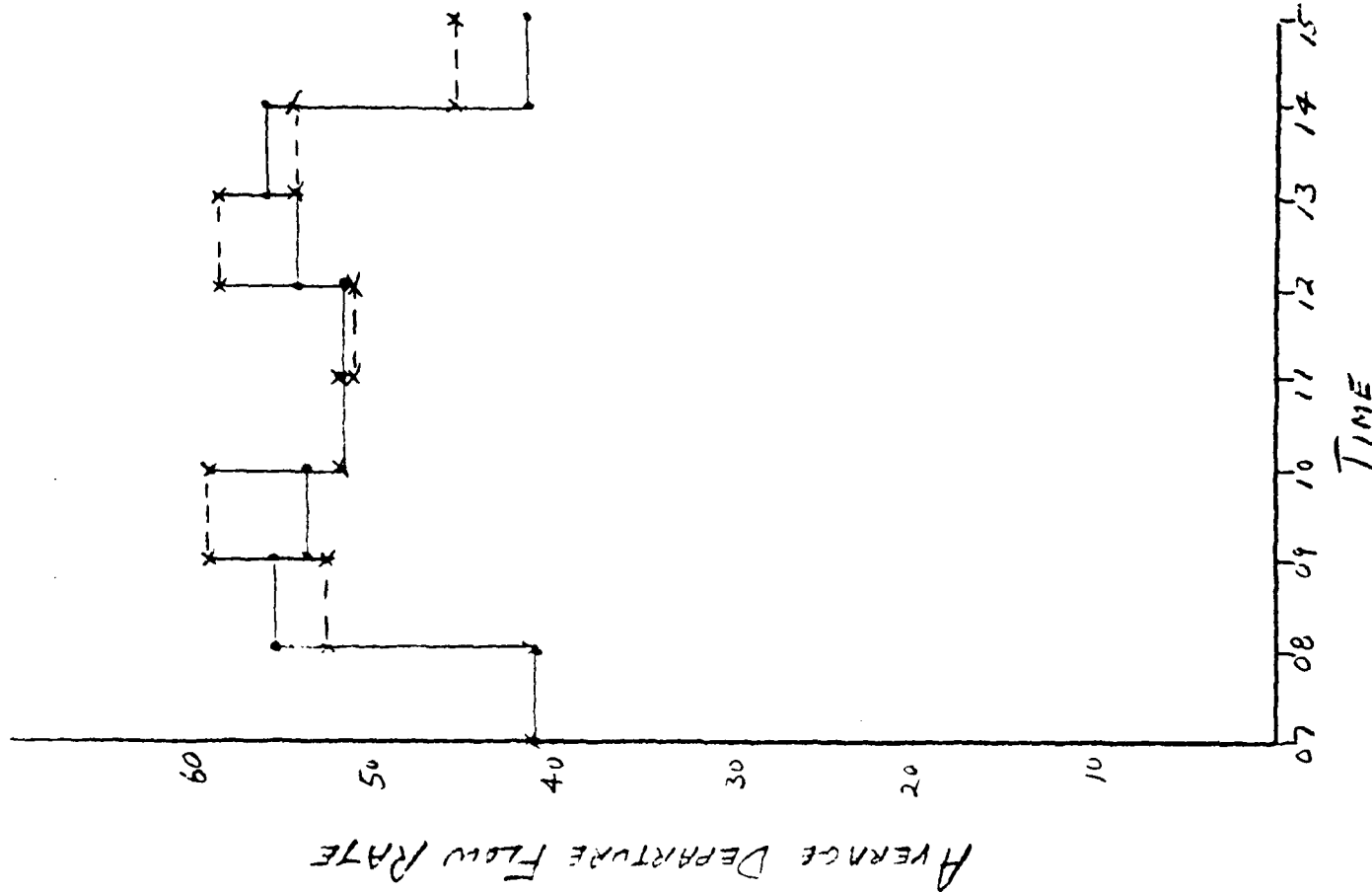


FIGURE 12 IFR-1 (1978) COMPARISON - WESTERLY FLOW

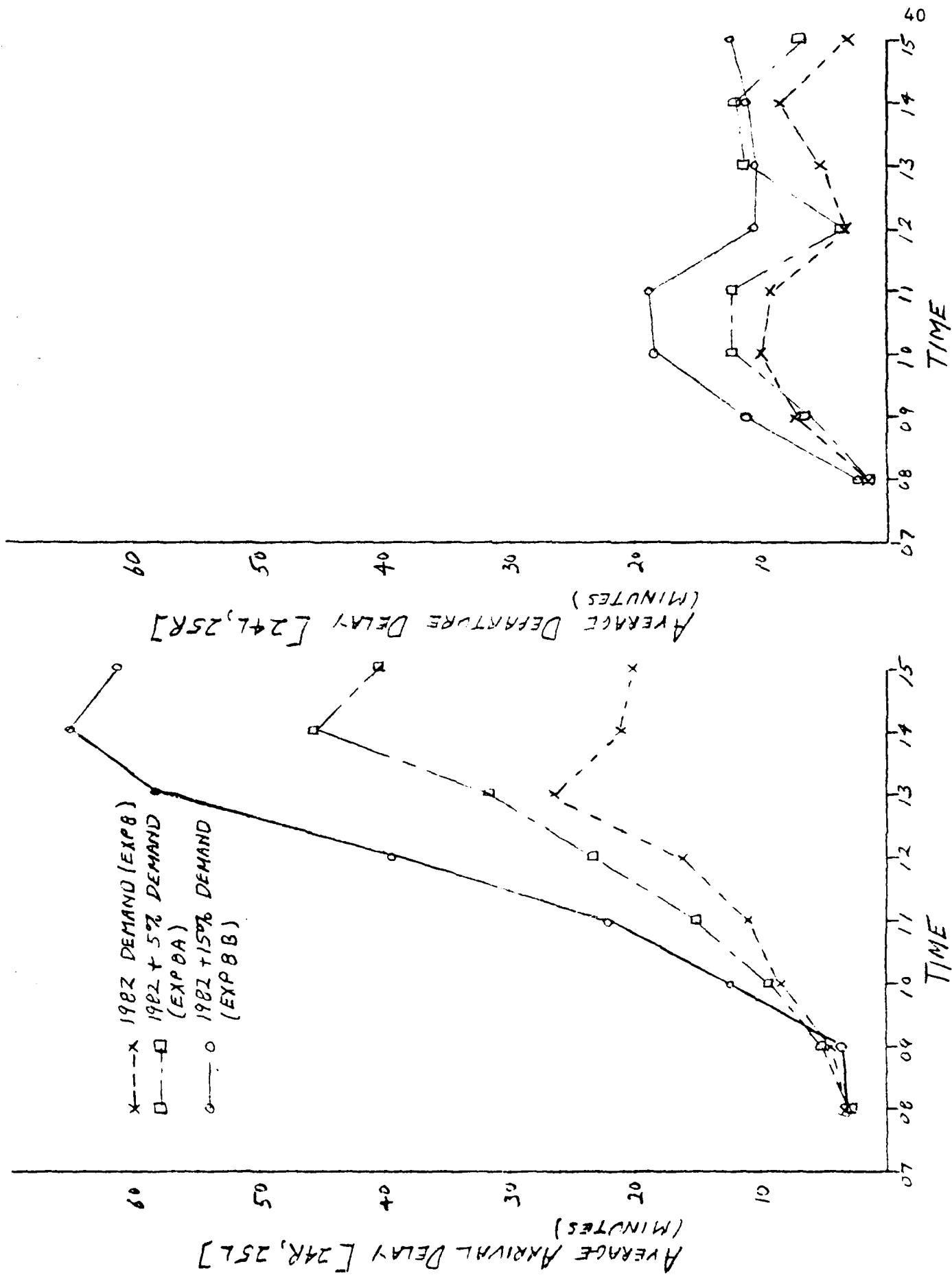


FIGURE 13 IFR-1 (1978) COMPARISON - WESTERN FLOW

LAX - STAGE 1EXPERIMENT NO. 12Objective:

To assess delays to aircraft in 1982 for the following runway configuration in IFR 1 with an improved ATC system scenario (1982) and the 1982 near-term improvements.

ARRIVAL RUNWAYS

24R, 24L, 25R, 25L

DEPARTURE RUNWAYS

24L, 25R

Related Comparison Experiments:

Prior Experiment #8 is similar except for the noted improvements and a 1978 ATC system scenario.

TABLE 17

SUMMARY OF RESULTS

EXPERIMENT NO. 13 (MODIFIED DEMAND)

TIME	AVERAGE FLOW RATES											AVERAGE TRAVEL TIME			
	ARRIVALS					DEPARTURES						FIX TO THRESH.	THRESH. TO GATE	GATE TO ROLL	
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.	
7-8	40	00	00	220	260	25	110	00	150	260	00	410	48	-7.0	42
8-9	200	00	00	235	435	45	-1.5	00	162	385	00	547	64	-7.3	48
9-10	80	00	00	228	318	41	-7.2	00	223	272	00	450	54	+11.0	43
10-11	222	00	00	283	505	53	-2.5	00	155	211	00	461	48	-1.9	47
11-12	255	00	00	310	565	62	-5.2	00	150	218	00	789	53	-2.3	47
12-13	250	00	00	249	499	44	14.9	00	249	380	00	549	65	-10.1	49
13-14	111	00	00	242	353	40	-4.7	00	211	365	00	577	54	+3.7	45
14-15	219	00	00	245	514	53	-1.6	00	108	337	00	445	41	+3.5	46
	ARRIVAL DELAYS					DEPARTURE DELAYS						GRAND TOTAL			
	AVERAGE					AVERAGE									
TIME	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI IN	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI OUT	RWY CONG.
7-8	00	00	00	22	20	0.1	0.3	00	01	16	00	11	00	02	00
8-9	12	00	00	65	41	0.1	0.3	00	10	74	00	69	02	65	02
9-10	00	00	00	136	101	02	02	00	23	105	00	71	00	65	05
10-11	13	00	00	224	132	0.1	0.1	00	19	81	00	61	00	06	03
11-12	13	00	00	255	145	0.1	0.1	00	18	24	00	22	00	02	00
12-13	31	00	00	385	204	0.1	0.2	00	11	105	00	76	00	04	10
13-14	03	00	00	371	255	0.2	0.1	00	20	15	00	85	00	04	11
14-15	10	00	00	348	216	0.1	0.1	00	01	57	00	46	00	02	01

TABLE 18

SUMMARY OF RESULTS

EXPERIMENT NO. 12 (MODIFIED DELTA) (REDUCED DEPARTURES TO 24L)

TIME	AVERAGE FLOW RATES												AVERAGE TRAVEL TIME			
	ARRIVALS						DEPARTURES						FIX TO THRESH.	THRESH. TO GATE	ARR. DELAY	DEP. DELAY
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE- MAND	DIFF.	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE- MAND	DIFF.		
7-8	40	0	0	22.0	26.0	25	+1.0	0	15.0	36.0	0	41.0	48	-7.0	4.2	6.3
8-9	20.0	0	0	24.9	44.9	45	-0.1	0	25.2	30.2	0	55.4	64	-8.6	4.7	14.2
9-10	40	0	0	27.0	35.0	41	-0.0	0	34.7	22.2	0	61.9	54	+7.9	4.2	15.7
10-11	22.0	0	0	30.6	52.6	52	-0.4	0	26.3	24.2	0	50.5	48	+2.5	4.7	13.5
11-12	25.9	0	0	30.7	56.6	62	-5.4	0	18.9	30.2	0	49.1	52	-2.9	4.7	8.3
12-13	24.6	0	0	29.0	53.6	44	+2.6	0	28.5	27.4	0	56.2	55	-2.8	4.8	14.9
13-14	11.5	0	0	27.7	39.2	40	-0.8	0	14.0	21.6	0	58.6	54	+4.6	4.6	17.2
14-15	22.0	0	0	30.5	52.5	53	-0.5	0	16.7	29.8	0	46.5	41	+5.5	4.7	10.6
GRAND TOTAL																
TIME	ARRIVAL DELAYS												DEPARTURE DELAYS			
	AVERAGE						AVERAGE						AVERAGE			
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	TAXI- IN	RWY CROSS	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI- OUT	RWY CONG.	ARR. DELAY
7-8	0.0	0.0	0.0	2.3	2.0	0.2	0.1	0.0	0.1	1.6	0.0	1.1	0.0	0.2	0.0	2.3
8-9	1.9	0.0	0.0	3.5	2.8	0.2	0.2	0.0	9.8	5.8	0.0	7.6	0.0	0.3	0.2	8.6
9-10	0	0.0	0.0	9.2	7.1	0.2	0.2	0.0	11.7	4.3	0.0	8.4	0.0	0.7	1.2	10.4
10-11	1.6	0.0	0.0	11.4	7.3	0.1	0.1	0.0	7.4	5.1	0.0	6.4	0	0.6	1.1	8.1
11-12	1.4	0.0	0.0	13.5	8.0	0.2	0.1	0.0	2.4	3.1	0.0	2.8	0.0	0.2	0.0	5.1
12-13	7.3	0.0	0.0	17.9	13.1	0.2	0.1	0.0	11.1	6.0	0.0	8.5	0.0	0.3	0.3	9.2
13-14	1.2	0.0	0.0	3.5	2.9	0.2	0.1	0.0	12.1	5.5	0.0	9.9	0.0	0.5	1.3	11.7
14-15	1.4	0.0	0.0	7.1	4.7	0.2	0.1	0.0	5.3	3.2	0.0	4.3	0.0	0.4	0.7	5.4

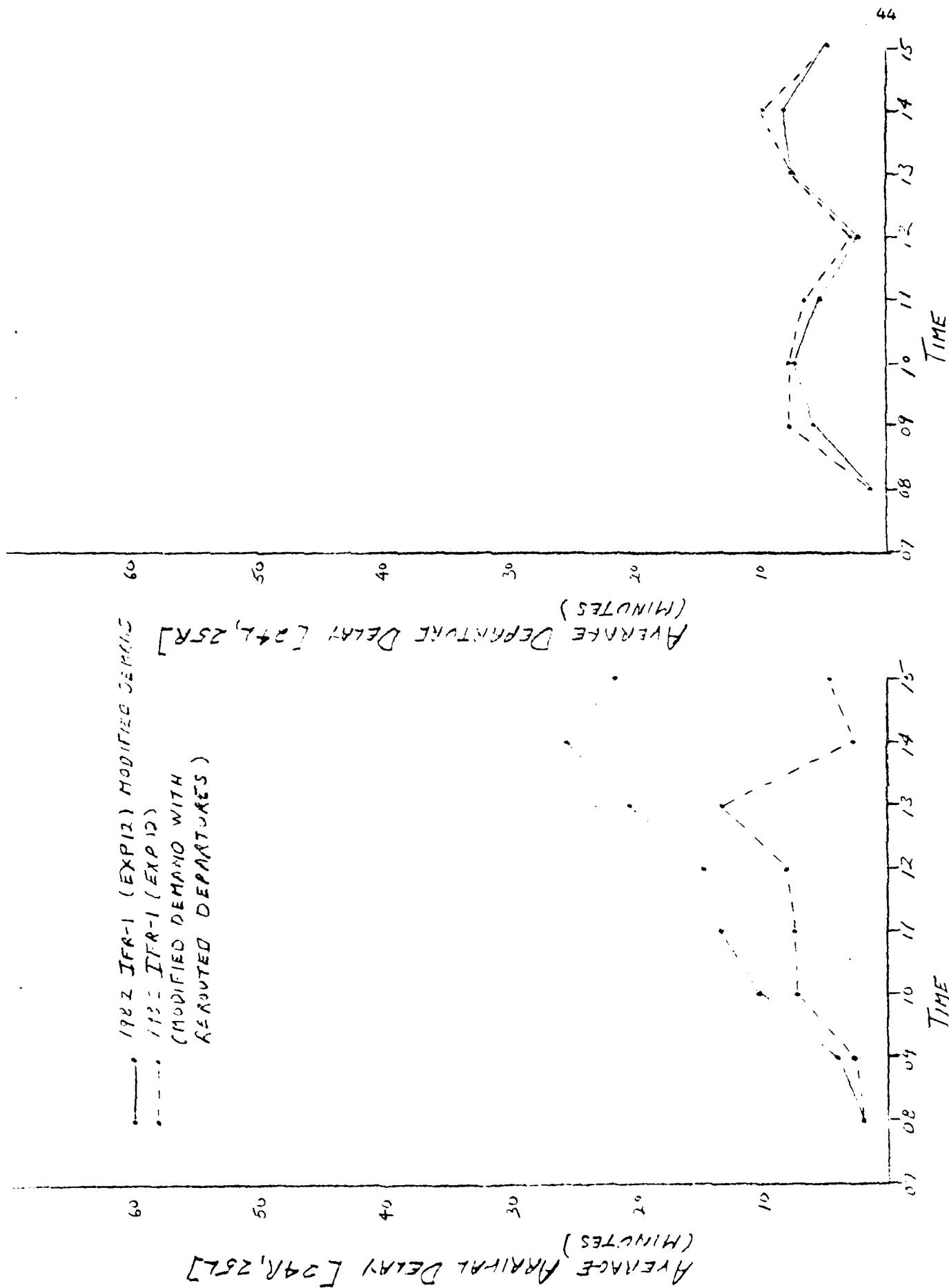


FIGURE 14 IFR-1 (1982) COMPARISON - WESTERLY FLOW

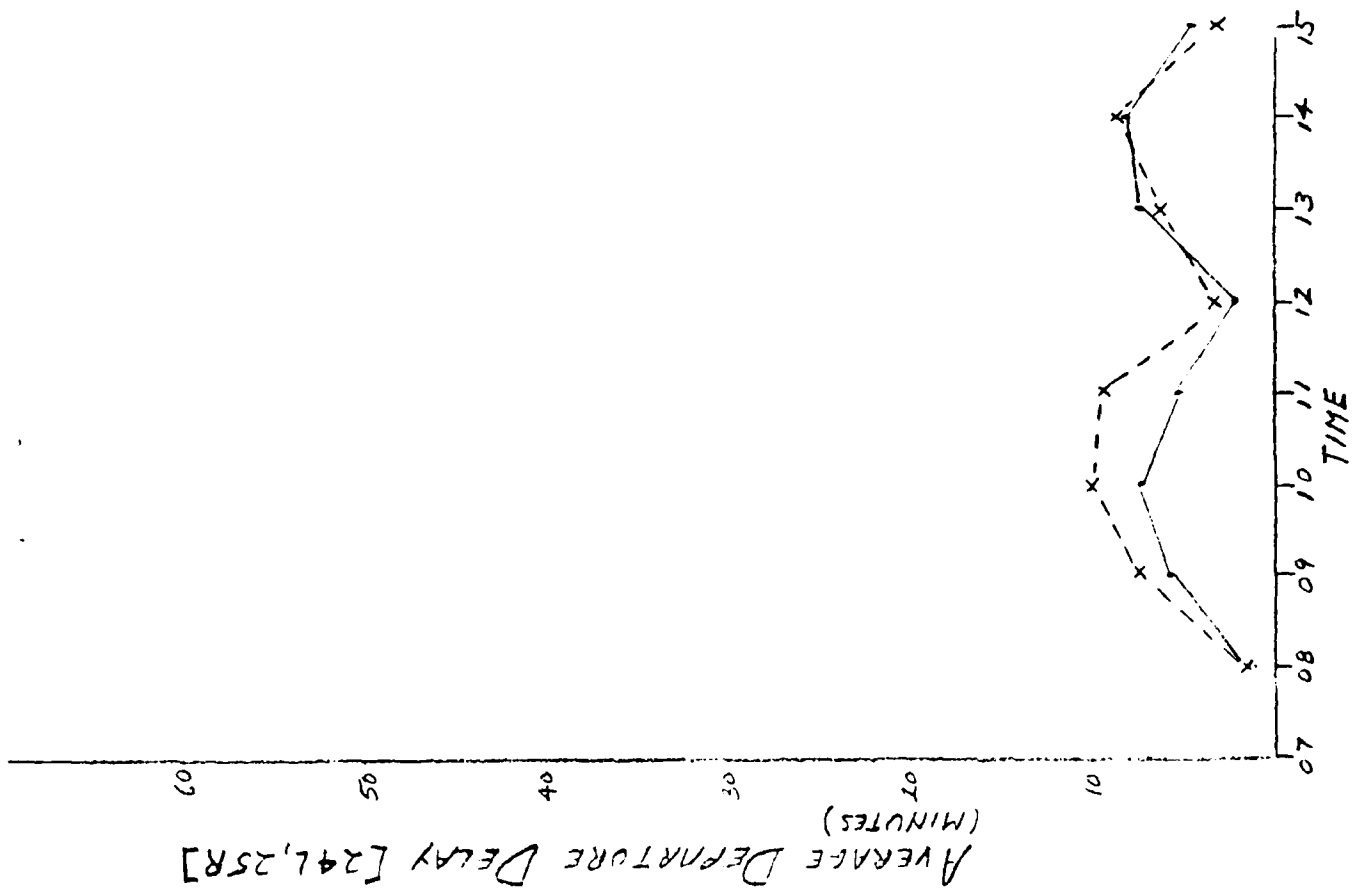
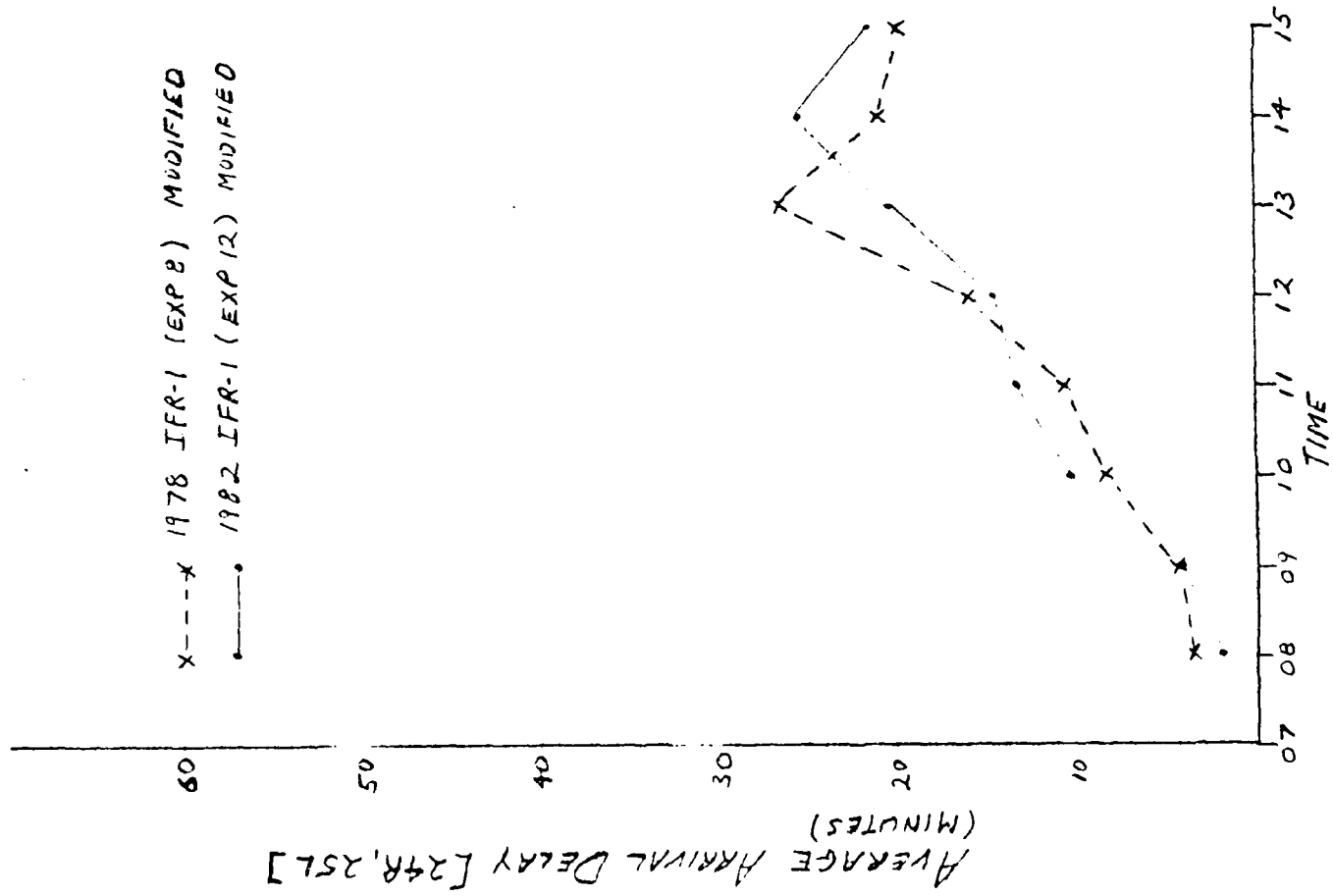


FIGURE 15 IFR-1 (1978 AND 1982) COMPARISON-WESTERLY FLOW

TABLE 19

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SET 3 DEMAND
VFR--EASTERLY FLOW

EXPERI- MENT		RWY 6R	RWY 6L	RWY 7R	RWY 7L	TOTAL
6	A	19	80	155	97	351
	D	160	38	81	140	419
	TOTAL	179	118	236	237	770
6*	A	19	124	119	89	351
	D	160	38	81	140	419
	TOTAL	179	162	200	229	770
9* AND 16*	A	17	118	133	95	363
	D	171	42	78	135	426
	TOTAL	188	160	211	230	789
	A					
	D					
	TOTAL					
	A					
	D					
	TOTAL					
	A					
	D					
	TOTAL					
	A					
	D					
	TOTAL					

* MODIFIED DEMAND

LAX - STAGE 1
EXPERIMENT NO. 6

Objective:

To obtain baseline delay estimates for the following runway configuration in VFR 1 for 1978 demand for east operations.

ARRIVAL RUNWAYS

6R, 6L, 7R, 7L

DEPARTURE RUNWAYS

6R, 6L, 7R, 7L

Related Comparison Experiments:

Experiment #9 is identical except for the 1982 demand.

TABLE 20
SUMMARY OF RESULTS
EXPERIMENT NO. 6

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12/10/77

TABLE 21

SUMMARY OF RESULTS

EXPERIMENT NO. 6 (MODIFIED DEMAND)

AVERAGE FLOW RATES																	
TIME	ARRIVALS						DEPARTURES						AVERAGE TRAVEL TIME				
	RWY 6R	RWY 6L	RWY 7R	RWY 7L	AVG. TOTAL FLOW	DE-MAND	DIFF..	RWY 6R	RWY 6L	RWY 7R	RWY 7L	AVG. TOTAL FLOW	DE-MAND	DIFF.	FIX TO THRESH.	THRESH. TO GATE	GATE TO ROLL
7-8	2.0	11.0	10.0	7.0	30.0	29	+1.0	16.0	4.0	8.0	13.0	41.0	48	-7.0	10.1	43	7.0
8-9	3.0	16.0	5.0	14.0	38.0	39	-1.0	29.0	2.0	8.0	17.9	56.9	64	-7.1	10.1	47	12.8
9-10	2.0	12.0	13.9	11.9	39.8	40	-0.2	27.9	5.0	3.1	20.2	56.2	52	+4.2	10.4	45	17.8
10-11	1.0	15.0	18.2	14.1	48.3	50	-1.7	16.1	3.6	7.5	21.2	48.4	48	+0.4	11.0	45	17.7
11-12	5.0	22.0	25.1	8.2	61.1	59	+2.1	15.8	7.2	14.2	14.6	51.8	52	-0.2	14.2	43	11.6
12-13	2.0	16.0	17.0	10.8	45.8	45	+0.6	23.0	4.2	16.5	13.0	56.7	65	-7.3	12.3	47	14.3
13-14	1.0	13.0	13.9	13.9	41.8	42	-0.2	20.8	2.9	14.3	17.8	55.8	57	+4.8	10.0	5.8	21.1
14-15	3.0	19.0	15.1	9.1	46.2	47	-0.8	9.9	8.9	6.3	20.1	45.2	39	+6.2	11.0	4.4	12.3
GRAND TOTAL																	
TIME	AVERAGE																
	DEPARTURE DELAYS																
	RWY 6R	RWY 6L	RWY 7R	RWY 7L	ALL RWY	RWY CROSS	TAXI-IN	RWY 6R	RWY 6L	RWY 7R	RWY 7L	ALL RWY	RWY CROSS	TAXI-OUT	RWY CONG.	ARR. DELAY	DEP. DELAY
7-8	0.1	0.3	0.2	0.0	0.2	0.0	0.8	0.0	1.5	1.6	1.1	0.0	0.0	0.4	0.0	0.7	1.5
8-9	0.3	1.4	0.2	0.2	0.7	0.0	6.7	1.2	3.2	4.3	6.5	0.0	0.0	0.5	0.1	0.9	7.1
9-10	0.0	0.4	0.9	0.4	0.9	0.1	9.4	5.1	1.9	15.2	10.7	0.0	0.0	1.0	0.8	0.4	12.5
10-11	0.3	0.3	1.5	0.9	0.9	0.1	1.6	1.7	3.9	16.1	8.3	0.0	0.0	2.0	2.3	1.6	12.6
11-12	0.3	0.7	7.8	0.5	3.7	0.1	1.4	1.5	13.2	4.0	5.4	0.0	0.0	1.1	0.1	4.0	6.6
12-13	0.1	0.7	3.5	0.6	1.7	0.3	5.9	4.9	7.9	13.0	7.7	0.0	0.0	1.3	0.3	2.3	11.3
13-14	1.4	0.5	1.0	0.6	0.7	0.2	1.9	2.8	10.4	19.8	9.8	0.0	0.0	4.2	2.0	2.5	16.0
14-15	0.8	0.4	0.6	1.1	0.6	0.1	0.8	1.2	2.2	7.9	4.3	0.0	0.0	1.0	1.8	1.0	7.1

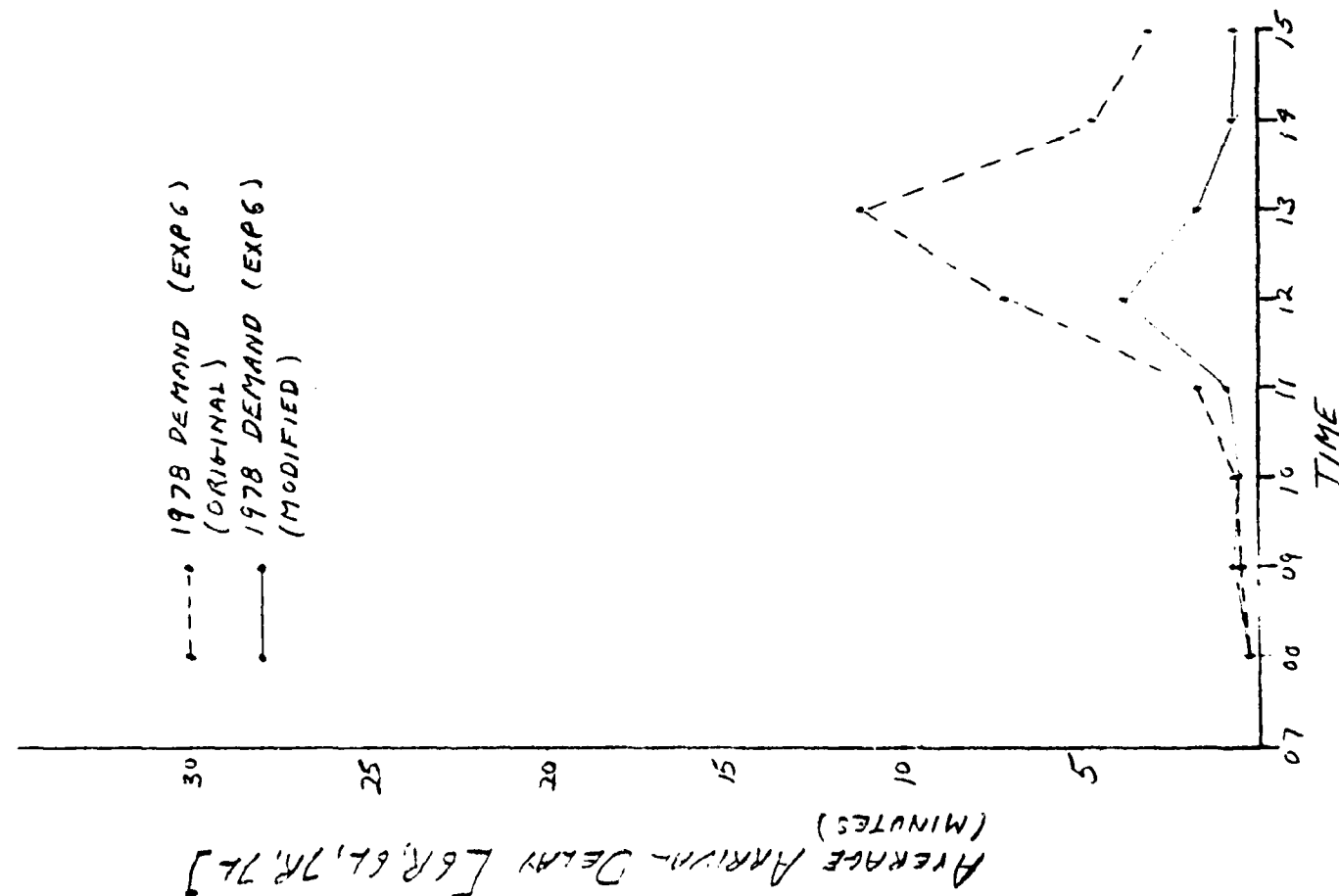
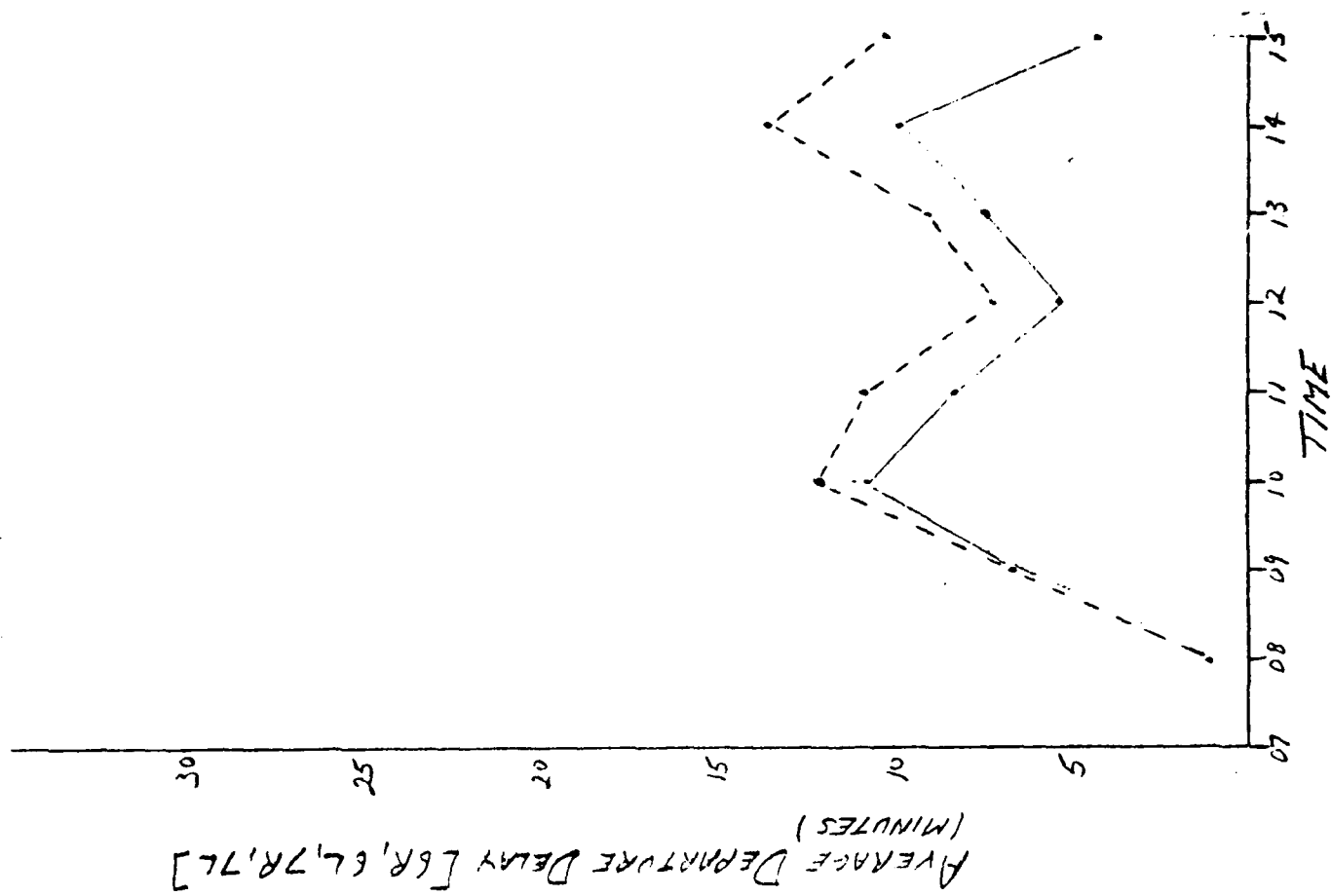


FIGURE 16 1FR-1 (1978) COMPARISON - EASTERLY FLOW

LAX - STAGE 1EXPERIMENT NO. 9Objective:

To obtain baseline delay estimates for the following runway configurations in VFR 1 for 1982 demand for east operations.

To obtain delay estimates for 1982 with no improvements to the airport for east operations.

ARRIVAL RUNWAYS

6R, 6L, 7R, 7L

DEPARTURE RUNWAYS

6R, 6L, 7R, 7L

Related Comparison Experiments:

Experiment #16 is identical except for near-term improvements #5, #7, and #8 and a 1982 ATC system scenario.

Prior Experiment #6 is similar with a 1978 demand.

TABLE 22

SUMMARY OF RESULTS

EXPERIMENT NO. 9 (MODIFIED DEMAND)

TIME	AVERAGE FLOW RATES											AVERAGE TRAVEL TIME			
	ARRIVALS					DEPARTURES						FIX TO THRESH.	THRESH. TO GATE	GATE TO ROLL	
	RWY 6R	RWY 6L	RWY 7R	RWY 7L	AVG. TOTAL FLOW	DE-MAND	DIFF.	RWY 6R	RWY 6L	RWY 7R	RWY 7L	AVG. TOTAL FLOW	DE-MAND	DIFF.	
7-8	1.0	5.0	17.0	6.0	26.0	25	+1.0	16.0	2.0	8.7	16.9	43.6	48	-4.4	4.0
8-9	1.0	12.0	15.0	11.0	45.0	45	0.0	24.5	6.1	7.7	18.2	56.5	64	-7.5	4.5
9-10	1.0	7.0	17.0	15.0	40.0	41	-1.0	31.5	4.9	5.1	14.3	56.1	54	+3.1	4.3
10-11	3.0	17.7	20.0	14.0	54.9	53	+1.7	18.8	8.0	5.2	19.9	57.9	48	+3.9	4.6
11-12	3.0	21.1	17.6	12.0	54.7	62	-2.2	16.6	5.0	8.6	16.9	47.3	53	-4.7	4.3
12-13	1.0	24.9	9.4	9.0	44.3	44	+0.3	25.1	4.0	16.1	19.3	64.5	65	-0.5	4.7
13-14	2.0	10.5	17.0	10.0	39.5	40	-0.5	25.3	5.0	12.2	13.0	55.5	54	+1.5	4.4
14-15	5.0	4.6	20.7	12.0	52.3	53	-0.7	12.7	5.3	11.0	14.5	43.5	41	+2.5	4.3
	ARRIVAL DELAYS					DEPARTURE DELAYS						GRAND TOTAL			
TIME	AVERAGE					AVERAGE						TOTAL			
	RWY 6R	RWY 6L	RWY 7R	RWY 7L	ALL RWY	RWY CROSS	TAXI IN	RWY 6R	RWY 6L	RWY 7R	RWY 7L	ALL RWY	RWY CROSS	TAXI OUT	ARR. DELAY
7-8	0.0	0.0	0.4	1.2	1.5	0.1	0.2	1.0	0.6	1.6	1.8	1.5	0.0	0.3	0.0
8-9	0.4	0.6	2.9	0.6	0.7	0.1	0.3	5.2	5.8	1.1	11.8	6.2	3.0	1.2	1.1
9-10	0.0	0.0	2.5	1.5	1.6	0.2	0.2	8.4	2.5	7.6	13.3	9.0	3.0	1.2	2.0
10-11	0.4	0.8	1.3	0.6	0.9	0.2	0.2	4.4	2.6	5.9	8.6	5.9	0.6	0.8	1.3
11-12	0.5	0.6	1.2	0.9	0.9	0.2	0.2	1.5	1.8	2.5	4.8	2.9	0.0	0.5	1.3
12-13	0.5	4.0	0.4	0.5	2.5	0.1	0.4	8.4	6.7	4.7	9.3	7.6	1.0	1.3	3.0
13-14	0.0	0.3	0.3	1.0	2.7	0.1	0.2	6.3	3.1	4.1	7.4	7.0	0.0	1.3	1.0
14-15	0.2	2.7	1.2	1.9	1.5	0.2	0.1	2.1	1.7	3.3	3.6	2.9	0.0	0.7	1.8

LAX - STAGE 1
EXPERIMENT NO. 16

Objective:

To assess delays to aircraft in two of the following runway configurations in VFR 1 with near-term improvements #5, #7, and #8 for east operations and a 1982 ATC system scenario.

ARRIVAL RUNWAYS

6R, 6L, 7R, 7L

DEPARTURE RUNWAYS

6R, 6L, 7R, 7L

Related Comparison Experiments:

Prior Experiment #9 is identical except for noted improvements to the airport and an improved ATC system scenario.

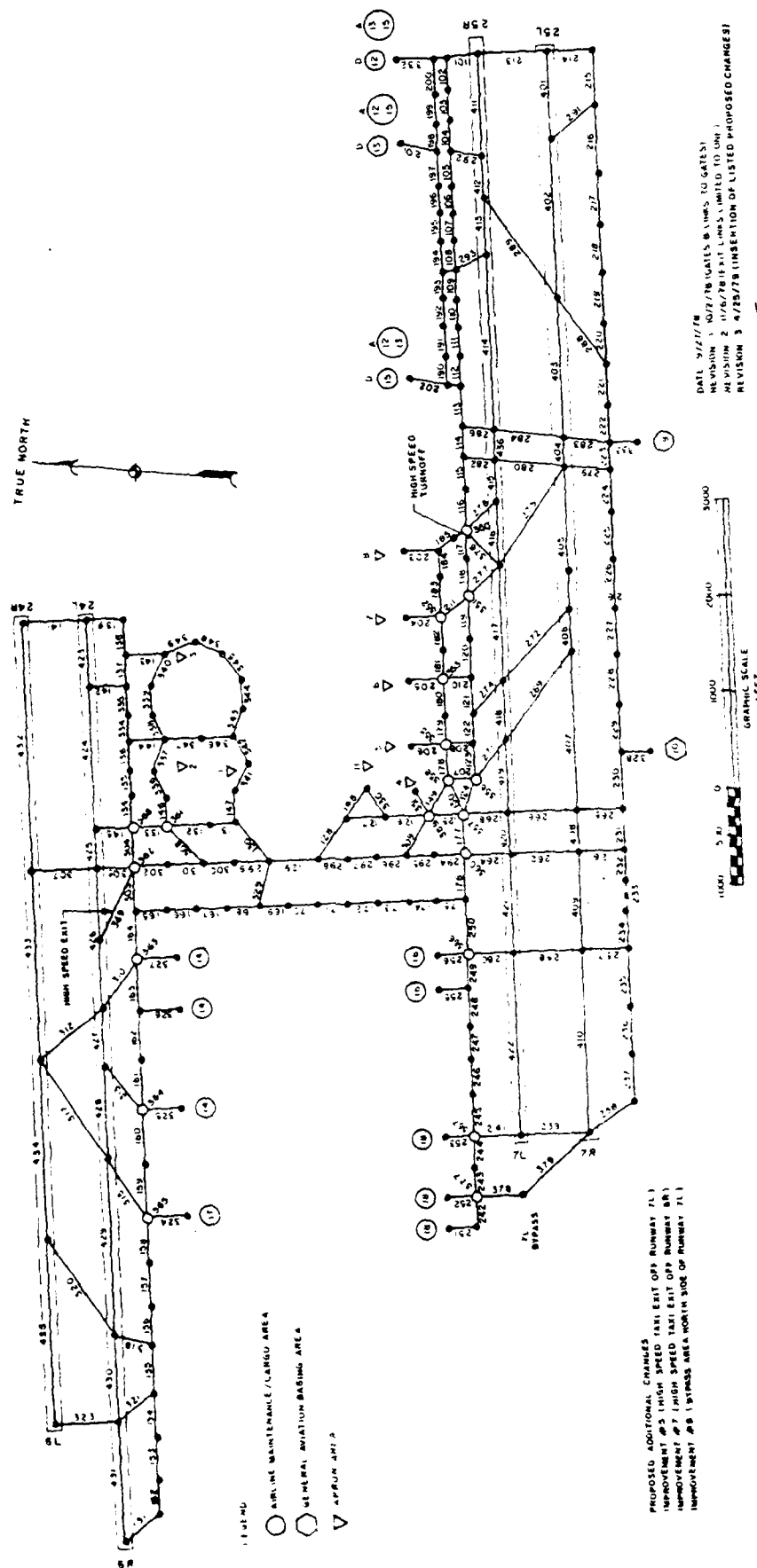


Figure 17 LAX LINK NODE DIAGRAM
 (7L BYPASS AND HIGH SPEED EXITS
 OFF 7L AND 6R)

TABLE 23

SUMMARY OF RESULTS

EXPERIMENT NO. 16 (MODIFIED DEMAND)

TIME	AVERAGE FLOW RATES											AVERAGE TRAVEL TIME			
	ARRIVALS					DEPARTURES						TIME			
	RWY 6R	RWY 6L	RWY 7R	RWY 7L	AVG. TOTAL FLOW	DE- MAND	DIFF.	RWY 6R	RWY 6L	RWY 7R	RWY 7L	AVG. TOTAL FLOW	DE- MAND	DIFF.	FIX TO THRESH.
7-8	1.0	5.0	14.0	6.0	26.0	25	+1.0	16.0	2.0	8.6	17.0	43.6	44	-4.4	10.5
8-9	1.0	18.0	15.0	11.0	45.0	45	0.0	24.6	6.0	8.1	18.5	57.2	64	-6.8	10.7
9-10	1.0	7.0	17.0	15.0	40.0	41	-1.0	31.4	5.1	5.2	14.8	56.5	54	+2.5	10.7
10-11	3.0	18.0	26.0	14.0	55.0	53	+3.0	18.9	7.2	5.1	18.8	50.6	48	+2.6	10.5
11-12	3.0	21.0	18.0	18.0	60.0	62	-2.0	17.0	5.1	9.0	17.9	49.0	52	-3.0	10.2
12-13	1.0	25.0	9.0	9.1	44.1	44	10.1	35.4	4.1	15.6	18.3	63.4	65	-1.6	12.1
13-14	2.0	10.1	17.0	9.9	31.0	40	-0.2	14.7	4.9	11.7	14.0	55.3	54	+1.3	10.7
14-15	5.0	14.1	21.0	12.0	52.1	53	-0.9	12.5	5.4	11.4	13.7	43.0	41	+2.0	11.5
GRAND TOTAL															
TIME	AVERAGE DELAYS											AVERAGE			
	ARRIVAL DELAYS					DEPARTURE DELAYS						TOTAL			
	RWY 6R	RWY 6L	RWY 7R	RWY 7L	ALL RWY	RWY 6R	RWY 6L	RWY 7R	RWY 7L	ALL RWY	RWY CROSS	TAXI- OUT	RWY CONG.	ARR. DELAY	DEP. DELAY
7-8	2.0	0.0	0.3	0.7	0.3	0.1	0.1	0.1	0.1	0.3	0.1	0.2	0.0	0.5	1.8
8-9	0.3	0.5	0.9	0.5	0.6	0.1	0.3	0.3	0.4	0.6	0.1	0.2	0.4	1.0	7.8
9-10	0.9	0.0	2.1	1.3	1.4	0.2	0.3	0.5	0.5	0.8	0.0	1.0	0.2	1.8	10.0
10-11	0.3	0.7	1.1	0.6	0.9	0.2	0.2	0.6	0.3	0.5	0.0	0.2	0.4	1.3	6.3
11-12	0.4	0.5	1.0	0.7	0.7	0.3	0.3	0.4	0.5	0.7	0.0	0.2	0.0	1.1	3.4
12-13	0.2	2.7	0.1	0.6	1.7	0.1	0.1	0.4	0.6	0.7	0.0	0.1	0.0	2.2	8.1
13-14	0.9	0.2	0.7	0.8	0.5	0.3	0.1	0.1	0.6	0.7	0.0	0.8	0.0	0.8	7.9
14-15	0.3	0.6	1.3	1.5	1.0	0.2	0.1	0.1	0.6	0.7	0.0	0.4	0.0	1.3	2.8

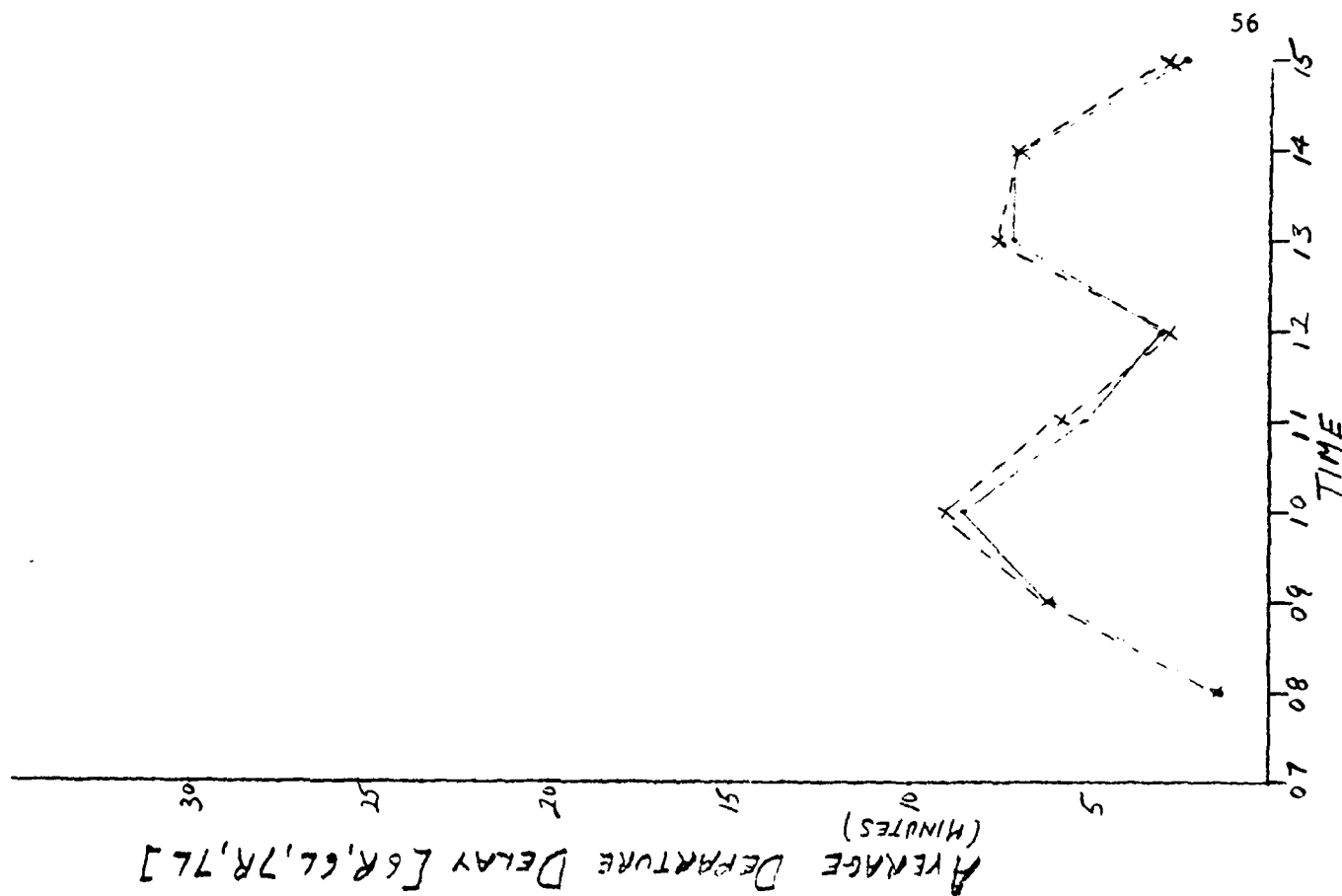
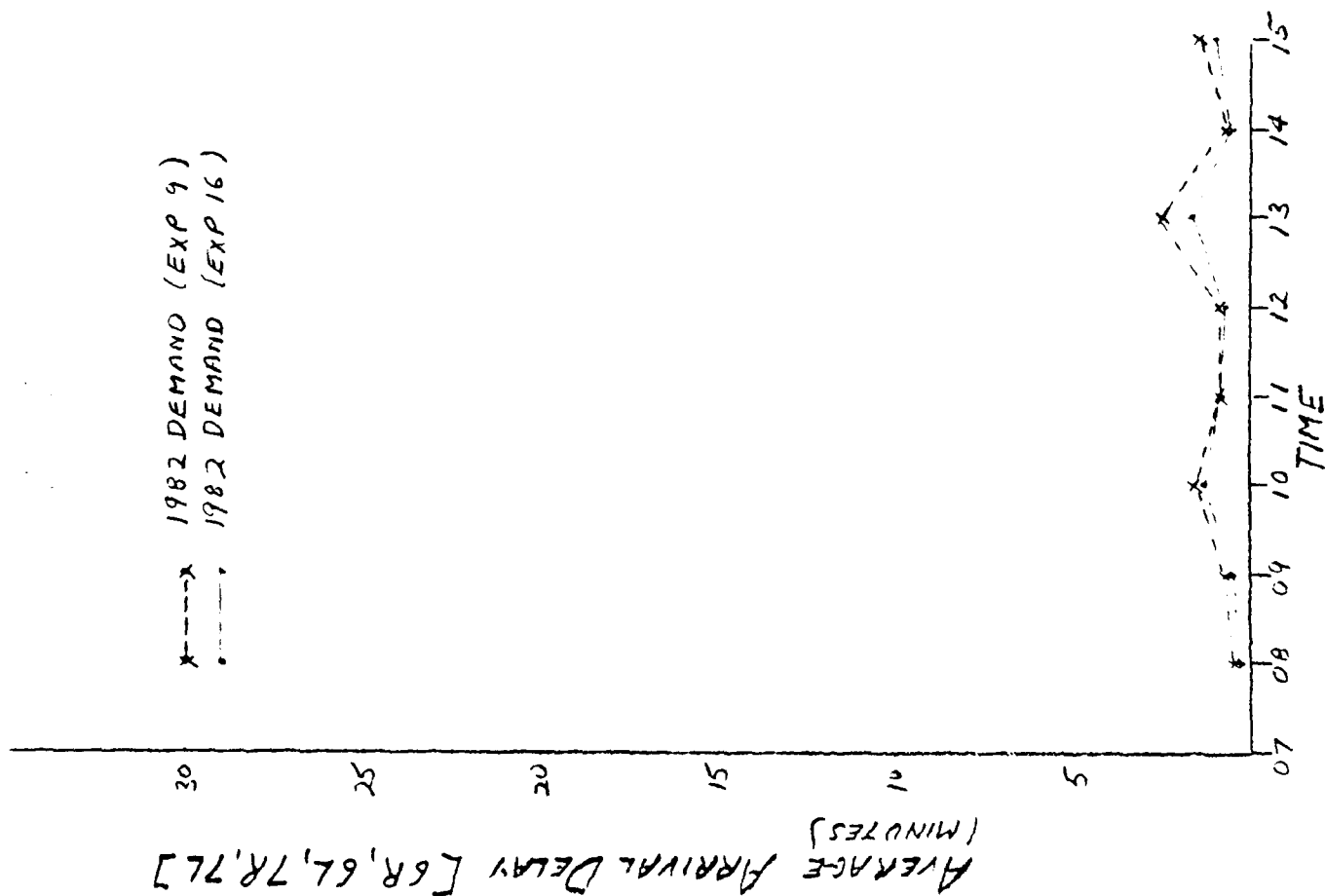


FIGURE 18 VFR-1 (1978 AND 1982) COMPARISON - EASTERLY FLOW

SET 4 DEMAND
VFR--NIGHT TIME

EXPERI- MENT		RWY 6R	RWY 7L	RWY 24L	RWY 25R	TOTAL
4	A	31	87	0	0	118
	D	0	0	69	69	138
	TOTAL	31	87	69	69	256
4*	A	118	0	0	0	118
	D	0	0	63	75	138
	TOTAL	118	0	63	75	256
10 ^M AND 15 ^V	A	117	0	0	0	117
	D	0	0	69	73	142
	TOTAL	117	0	69	73	259
	A					
	D					
	TOTAL					
	A					
	D					
	TOTAL					
	A					
	D					
	TOTAL					
	A					
	D					
	TOTAL					

* MODIFIED DEMAND

LAX - STAGE 1EXPERIMENT NO. 4Objective:

To obtain baseline delay estimates for the following runway configuration in VFR 1 for 1978 demand for nighttime operations.

ARRIVAL RUNWAYS

6R, 7L

DEPARTURE RUNWAYS

24L, 25R

Related Comparison Experiments:

Experiment 5 is identical except for IFR 1 weather conditions.

Experiment 10 is identical except for 1982 demand.

TABLE 25

SUMMARY OF RESULTS

EXPERIMENT NO. 4

TIME	AVERAGE FLOW RATES														AVERAGE TRAVEL TIME			
	ARRIVALS							DEPARTURES							TIME			
	RWY 6R	RWY 7L	RWY 24L	RWY 25R	AVG. TOTAL FLOW	DE-MAND	DIFF.	RWY 6R	RWY 7L	RWY 24L	RWY 25R	AVG. TOTAL FLOW	DE-MAND	DIFF.	FIX TO THRESH.	THRESH. TO GATE	GATE TO ROLL	
0-1	3.0	14.0	0	0	17.0	19	-2.0			0.0	0.0	13.0	14	-11.0	11.4	4.6	17.2	
1-2	4.0	15.0	0	0	19.0	18	-1.0			4.5	8.0	12.5	19	+3.5	14.7	4.3	14.9	
2-3	5.0	5.0	0	0	10.0	14	+4.0			0.0	1.0	1.0	9	0.0	25.8	4.7	23.7	
3-4	1.0	1.0	0	0	10.0	5	+5.0			16.0	1.0	17.0	4	+13.0	32.0	4.1	17.7	
4-5	1.0	1.0	0	0	10.0	10	0.0			6.5	5.0	11.5	7	-4.5	10.7	4.6	25.2	
5-6	3.0	3.0	0	0	6.0	7	-1.0			4.0	4.5	8.5	10	-1.5	11.0	4.7	7.3	
6-7	6.5	6.5	0	0	13.0	16	-3.0			12.0	7.0	9.5	17	-7.5	10.3	4.4	17.1	
7-8	3.5	6.5	0	0	10.0	29	-19.0			8.5	9.5	18.0	48	-30.0	14.4	4.0	20.6	
ARRIVAL DELAYS																		
DEPARTURE DELAYS																		
AVERAGE																		
AVERAGE																		
TIME	RWY 6R	RWY 7L	RWY 24L	RWY 25R	ALL RWY	RWY CROSS	TAXI-IN	RWY 6R	RWY 7L	RWY 24L	RWY 25R	ALL RWY	RWY CROSS	TAXI-OUT	RWY CONG.	ARR. DELAY	DEP. DELAY	
0-1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	12.2	
1-2	0.0	5.0	0.0	0.0	4.0	0.0	0.1	0.0	0.0	45.8	36.7	39.1	0.0	0.0	0.0	4.1	39.1	
2-3	11.0	22.8	0.0	0.0	17.0	0.0	0.0	0.0	0.0	0.0	16.7	16.7	0.0	0.0	0.0	17.0	16.7	
3-4	1.0	24.7	0.0	0.0	22.3	0.0	0.0	0.0	0.0	72.9	4.2	64.1	0.0	0.0	1.7	22.3	70.8	
4-5	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	18.0	5.7	13.5	0.0	0.2	7.2	0.2	20.7	
5-6	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	3.6	1.9	0.0	0.0	0.0	0.2	1.9	
6-7	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	15.4	2.8	11.2	0.0	0.0	0.0	0.2	11.2	
7-8	4.0	7.1	0.0	0.0	5.9	0.0	0.1	0.0	0.0	27.3	23.5	24.7	0.0	0.2	0.2	6.0	24.9	

LAX - STAGE 1EXPERIMENT NO. 10Objective:

To obtain baseline delay estimates for the following runway configurations in VFR 1 for 1982 demand.

To obtain delay estimates for 1982 with no improvements to the airport.

ARRIVAL RUNWAYS

6R, 7L

DEPARTURE RUNWAYS

24L, 25R

Related Comparison Experiments:

Experiment 10A is identical except for IFR 1 weather conditions.

Experiment 15 is identical except for near-term improvements #5 and #7 and an improved ATC system scenario.

Prior Experiment 4 is identical except for 1978 demand.

TABLE 27

SUMMARY OF RESULTS

EXPERIMENT NO. 10 (MODIFIED)

TIME	AVERAGE FLOW RATES											AVERAGE TRAVEL TIME			
	ARRIVALS					DEPARTURES						FIX TO THRESH.		THRESH. TO GATE	
	RWY 6R	RWY 7L	RWY 24L	RWY 25R	AVG. TOTAL FLOW	DE-MAND	DIFF.	RWY 6R	RWY 7L	RWY 24R	RWY 25R	AVG. TOTAL FLOW	DE-MAND	DIFF.	
0-1	12.0	0	0	0	12.0	19	-7.0	0	0	10.8	13.0	23.8	26	-2.2	10.8
1-2	18.0	0	0	0	18.0	22	-4.0	0	0	9.7	7.0	16.7	19	-2.3	33.9
2-3	23.9	0	0	0	23.9	13	+9.9	0	0	7.4	6.0	13.4	10	+3.4	34.0
3-4	5.1	0	0	0	5.1	4	+1.1	0	0	4.1	2.0	6.1	4	+2.1	11.2
4-5	10.0	0	0	0	10.0	9	+1.0	0	0	2.1	1.0	3.1	7	-3.1	11.1
5-6	10.0	0	0	0	10.0	9	+1.0	0	0	8.9	7.0	15.9	10	+5.9	13.6
6-7	13.3	0	0	0	13.3	16	-2.7	0	0	4.1	11.0	15.1	18	-2.9	12.3
7-8	6.5	0	0	0	6.5	25	-18.5	0	0	17.0	26.0	43.0	48	-5.0	30.3
GRAND TOTAL															
AVERAGE															
TIME	ARRIVAL DELAYS											DEPARTURE DELAYS			
	ARRIVAL DELAYS					DEPARTURE DELAYS						AVERAGE			
	RWY 6R	RWY 7L	RWY 24L	RWY 25R	ALL RWY	RWY 6R	RWY 7L	RWY 24L	RWY 25R	ALL RWY	RWY CROSS	TAXI-OUT	RWY CONG.	ARR. DELAY	DEP. DELAY
0-1	0.7	0.0	0.0	0.0	0.7	0.0	0.0	11.9	0.3	5.6	0.0	0.1	0.0	0.8	5.7
1-2	23.2	0.0	0.0	0.0	23.2	0.0	0.0	15.7	0.0	9.1	0.0	0.0	0.0	23.2	9.1
2-3	24.1	0.0	0.0	0.0	24.1	0.0	0.0	18.6	0.0	10.2	0.0	0.2	0.0	24.1	10.4
3-4	2.0	0.0	0.0	0.0	2.0	0.0	0.0	11.7	0.0	7.9	0.0	0.0	0.0	2.0	7.9
4-5	0.6	0.0	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.5	0.0	0.0	0.0	0.6	0.5
5-6	3.0	0.0	0.0	0.0	3.0	0.0	0.0	12.6	0.0	7.0	0.0	0.5	0.0	3.0	7.5
6-7	1.4	0.0	0.0	0.0	1.4	0.0	0.0	23.8	0.2	6.5	0.0	0.1	0.0	1.5	6.7
7-8	20.9	0.0	0.0	0.0	20.9	0.0	0.0	13.8	0.6	5.8	0.0	0.3	0.0	21.0	6.1

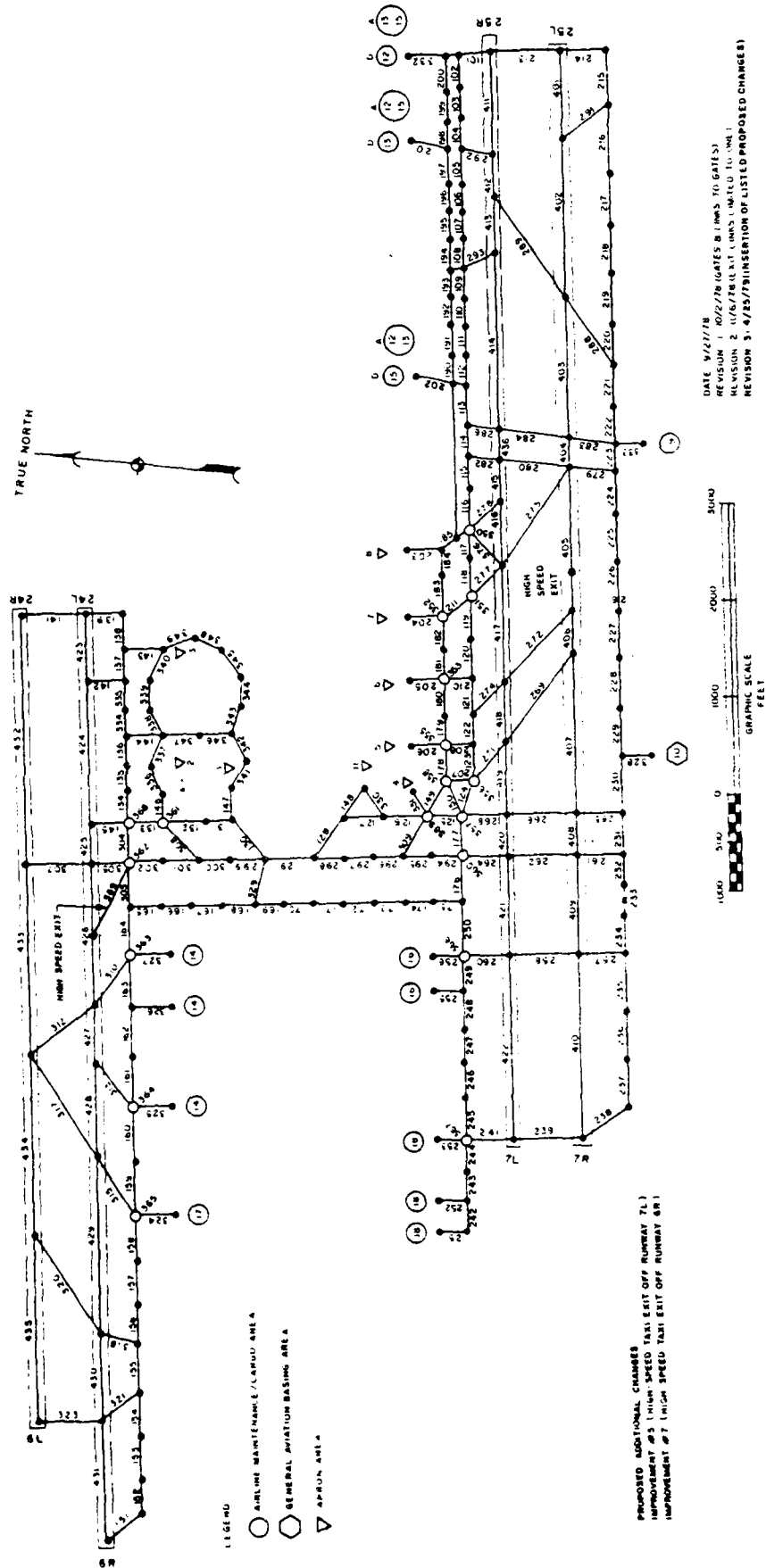


Figure 19 LAX LINK NODE DIAGRAM
(HIGH SPEED EXITS OFF 7L AND 6R)

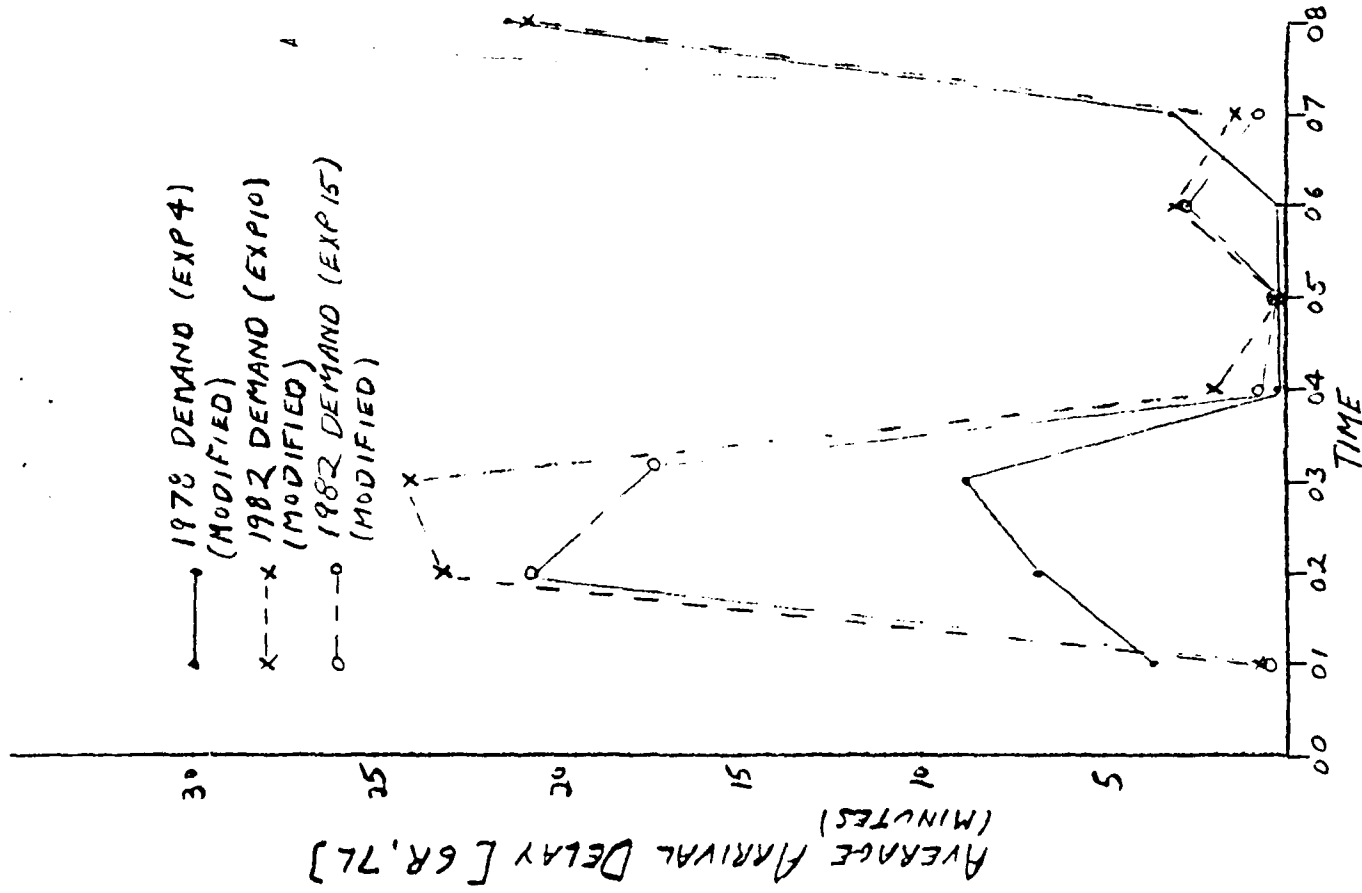
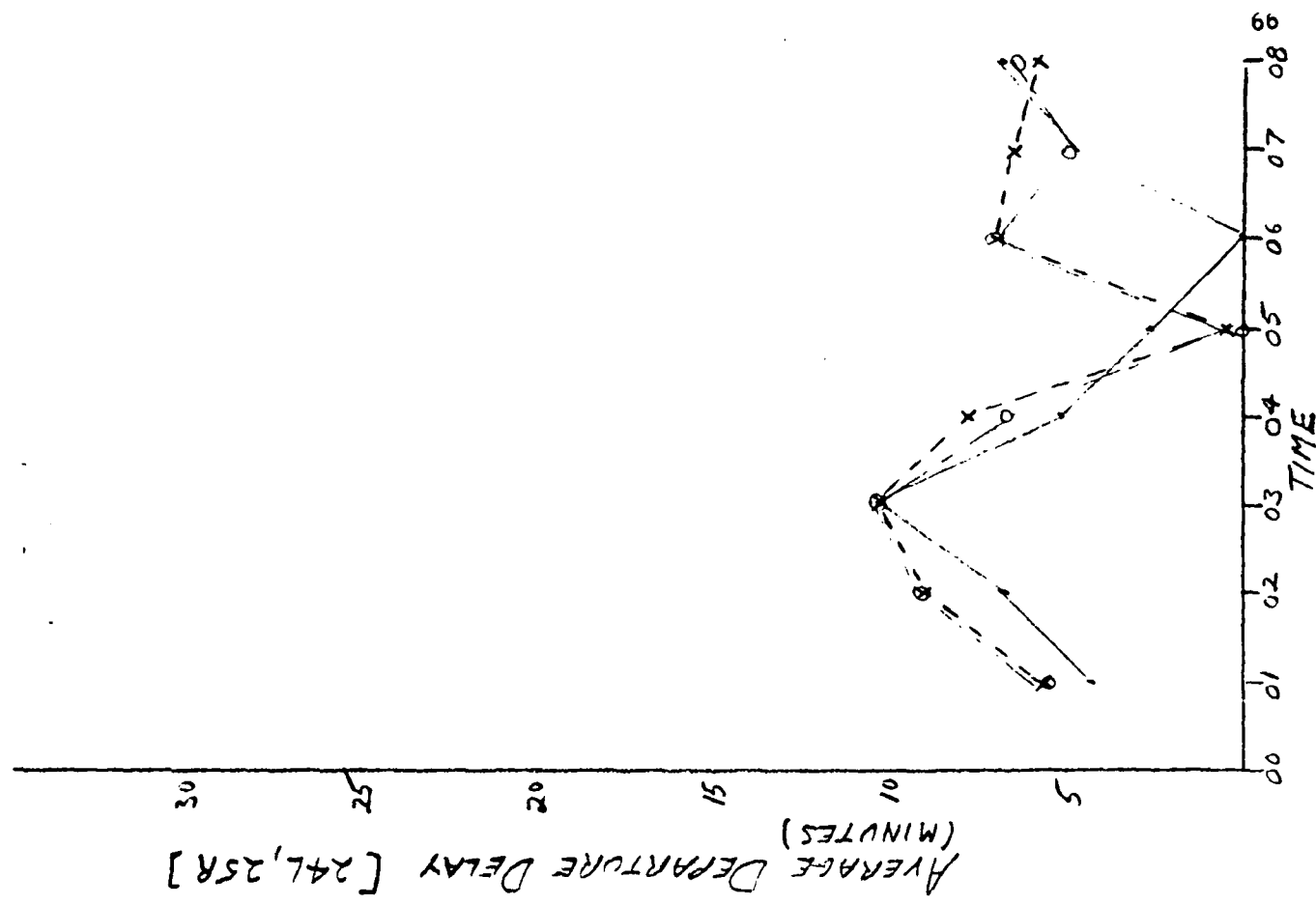


FIGURE 20 VFR-1 (1978-1982) COMPARISON - NIGHT TIME

TABLE 29

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SET 5 DEMAND
IFR--NIGHT TIME

EXPERI- MENT		RWY <i>6R</i>	RWY <i>7L</i>	RWY <i>24L</i>	RWY <i>25R</i>	TOTAL
<i>5*</i>	A	<i>118</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>118</i>
	D	<i>0</i>	<i>0</i>	<i>63</i>	<i>75</i>	<i>138</i>
	TOTAL	<i>118</i>	<i>0</i>	<i>63</i>	<i>75</i>	<i>256</i>
<i>10A*</i>	A	<i>117</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>117</i>
	D	<i>0</i>	<i>0</i>	<i>69</i>	<i>73</i>	<i>142</i>
	TOTAL	<i>117</i>	<i>0</i>	<i>69</i>	<i>73</i>	<i>259</i>
	A					
	D					
	TOTAL					
	A					
	D					
	TOTAL					
	A					
	D					
	TOTAL					
	A					
	D					
	TOTAL					
	A					
	D					
	TOTAL					

* MODIFIED DEMAND

LAX - STAGE 1

EXPERIMENT NO. 10A

Objective:

To obtain baseline delay estimates for the following runway configuration in IFR 1 for 1982 demand.

To obtain delay estimates for 1982 with no improvements to the airport.

ARRIVAL RUNWAYS

6R, 7L

DEPARTURE RUNWAYS

24L, 25R

Related Comparison Experiments:

Prior Experiment 5 is similar with a 1978 demand.

TABLE 31

SUMMARY OF RESULTS

EXPERIMENT NO. 10A

TIME	AVERAGE FLOW RATES														AVERAGE TRAVEL TIME							
	ARRIVALS							DEPARTURES							FIX TO THRESH.	THRESH. TO GATE	GATE TO ROLL					
	RWY 6R	RWY 7L	RWY 24L	RWY 25R	AVG. TOTAL FLOW	DE-MAND	DIFF.	RWY 6R	RWY 7L	RWY 24R	RWY 25R	AVG. TOTAL FLOW	DE-MAND	DIFF.								
	ARRIVAL DELAYS														DEPARTURE DELAYS							GRAND TOTAL
AVERAGE														AVERAGE							TOTAL	
TIME	RWY 6R	RWY 7L	RWY 24L	RWY 25R	ALL RWY	RWY CROSS	TAXI-IN	RWY 6R	RWY 7L	RWY 24L	RWY 25R	ALL RWY	RWY CROSS	TAXI-OUT	RWY CONG.	ARR. DELAY	DEP. DELAY					
0-1	2.2	0.0	0.0	0.0	2.2	0.0	0.0	0.0	0.0	18.3	5.6	11.1	0.0	0.1	0.0	2.2	11.7					
1-2	43.0	0.0	0.0	0.0	43.0	0.0	0.0	0.0	0.0	17.6	8.9	13.9	0.0	0.0	0.0	43.0	13.9					
2-3	57.7	0.0	0.0	0.0	57.7	0.0	0.0	0.0	0.0	26.8	25.1	26.0	0.0	0.0	0.0	57.6	26.0					
3-4	61.9	0.0	0.0	0.0	61.9	0.0	0.0	0.0	0.0	32.2	39.1	42.2	0.0	0.1	0.0	62.0	42.2					
4-5	7.5	0.0	0.0	0.0	7.5	0.0	0.1	0.0	0.0	21.5	14.4	20.0	0.0	0.0	0.0	7.6	20.0					
5-6	4.1	0.0	0.0	0.0	4.1	0.0	0.0	0.0	0.0	16.7	8.1	13.4	0.0	0.3	0.0	4.9	13.6					
6-7	5.6	0.0	0.0	0.0	5.6	0.0	0.1	0.0	0.0	14.9	14.2	15.2	0.0	0.4	0.0	5.7	15.6					
7-8	28.4	0.0	0.0	0.0	28.4	0.0	0.6	0.0	0.0	17.6	13.2	14.7	0.0	0.4	0.1	24.1	15.2					

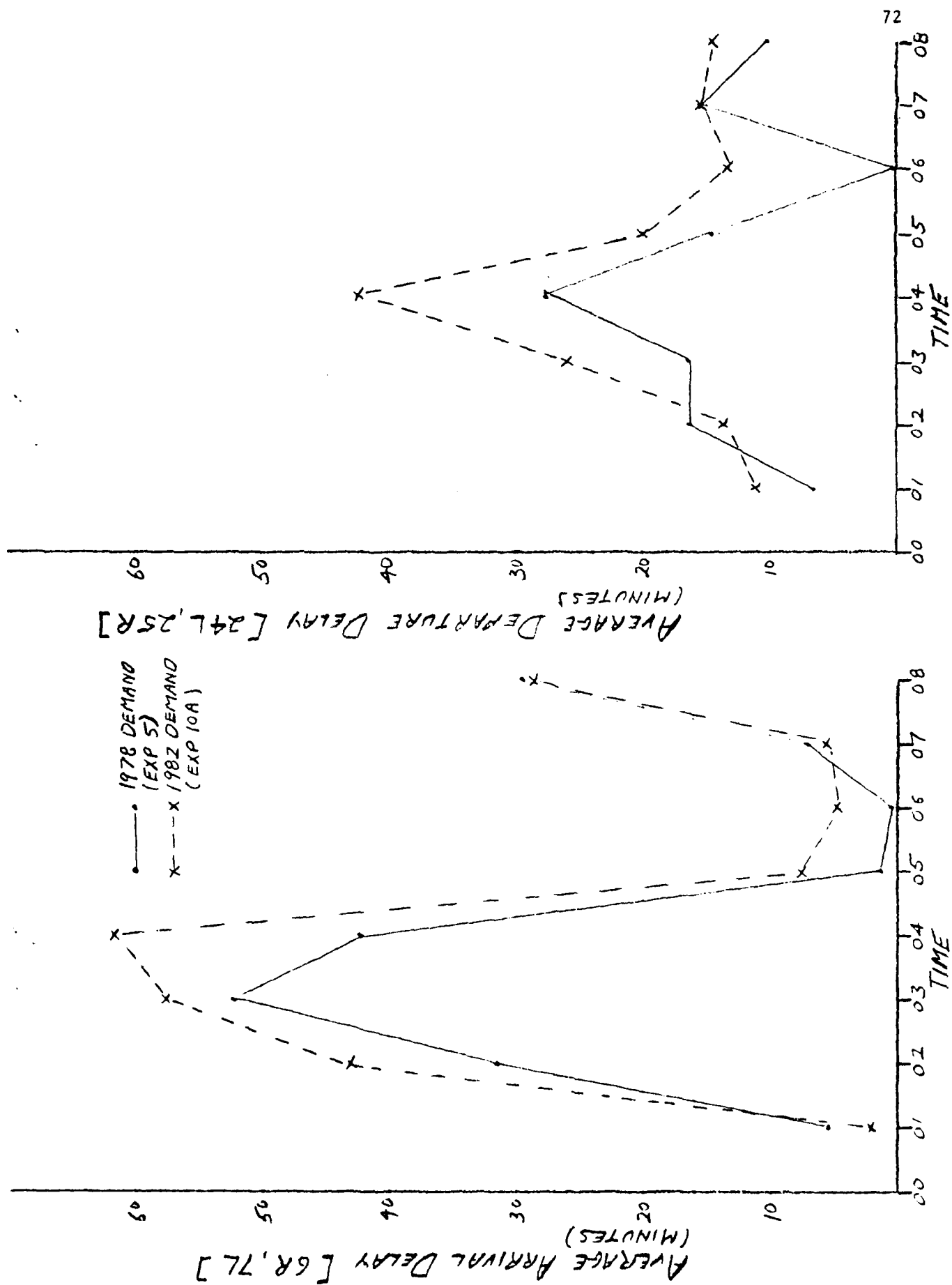


FIGURE 21 IFR-1 (1978) COMPARISON - NIGHT TIME